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ORIGINAL ARTICLES.

SOME PRESENT FALLACIES IN MEDICAL EDUCATION.

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THE long vacation for 1905 is over, and we have reassembled to begin another period of work, and this time and place seems fitted to discuss some of the problems of medical education which have seemed settled and fixed in our working system and which we have accepted as such, by custom and inheritance, from many generations of students and instructors who have preceded us on these benches and behind this desk.

Inasmuch as I have selected for discussion those peculiarities of our own curriculum and customs, which I consider as proper subjects for more or less adverse criticism, I have grouped them together under the general title of "Fallacies in Medical Education."

One of the fallacies which I would discuss concerns this very question of a four months' vacation. The fact is that almost no one of us takes the full measure of rest granted by our curriculum, and it cannot be claimed that any one of us needs that amount of time in which to renew the mind and body for another session of work. The individual student is wont to fill in the superfluous portion of this vacation with extra work in courses under instruction or with substitution on the house staffs of the various hospitals. The University, on the other hand, has offered a series of courses covering all branches of medicine, which form a Summer Session in medicine, and occupies the better part of June, July and August. A study of the attendance on these summer courses, however, shows a remarkable lack of agreement between the ideas of the university authorities and those of the student body. The Summer Session this year consisted of forty-one courses and was attended by forty-three students, nine of whom were graduates. During the three years of the existence of this Summer Session the attendance has been 53, 56 and 43 students respectively.

The University, in other words, offers an opportunity for students of medicine to advance their knowledge, and the students practically decline to avail themselves of it. Why this discrepancy between theory and practice? What is the cause of this condition which I would call the fallacy of the Summer Session? The answer is not to be found in the expense involved, for it is a well-known fact that the majority of medical students spend every year for extra tuition at least half as much again as the amount of their college fees. The solution is not to be sought in the character of the instruction offered, for these courses were to be given by the same men who conduct some of the most popular courses of the regular work of this school. I believe that the riddle can be solved by an analysis of the attendance. Of the 41 courses offered only five were taken at all, and of the 43 students 39 were divided between the two courses of physical diagnosis and practical obstetrics. And all the undergraduates were to be found in these two groups.

I believe that the reason for this condition is to be found in the fact that of the two courses, practical obstetrics and physical diagnosis, which are successful, one forms a very trying part of the work required for graduation and the other is one of the chief requirements of all hospital examinations. I wish at this time only to point out the fact that the existence of a Summer Session under present conditions is a useless appendage to our curriculum. But I would add that I believe that it can be made successful if based on different and on less fallacious foundations.

Another fallacy I wish to refute is one which also concerns the curriculum and for which your instructors are in large measure responsible. I will call this the fallacy of trades unionism in medical education. It has been for some time the fixed policy to limit the amount of opportunity granted in the individual school to each individual student of medicine. No one student was permitted to secure more work than another, at least with official sanction. The result has been that the students with the better equipment, either of preliminary training or of natural endowment and intelligence, have been compelled to limit their activities to correspond with the capabilities for work and for intellectual absorption of their most poorly prepared and their least intelligent fellows.

It can be said that every academic degree necessarily represents only the least requirement necessary for its winning, but it should be possible to say of no degree that it may never represent more than that required minimum of achievement. And yet the degree of doctor of medicine has in the not too distant past been very near too guilty of the charge. To characterize such a system as a "unionizing" of medical education is to stigmatize it as a companion only of those degenerated trades unions which have fallen into the control of the worst elements among their members. But the condition under criticism has not been developed through the efforts of the laggards of medicine, —on the contrary, it is the result of the work of the leaders in the profession, who have had the

control of medical education, in an honest but misguided effort to fulfil their whole duty to every student and to give to each one the same amount of time and the same chance to gain a knowledge of the art and science of medicine. The result is known in the curriculum of the modern medical school which presents a hard and fast high-school course covering the whole subject of medicine. No serious fault can be found with such a curriculum in regard to its thoroughness, to its logical sequence of presentation or to its sufficiency when it is studied on paper. But in practice such a curriculum lacks elasticity and adaptability to new conditions, and is almost incapable of growth and expansion. It permits its votaries to accomplish only a certain mimimum of work in a given time and it hampers individual effort and intellectual advance. Under this system two answers have been given to the criticism offered. The answer of the instructor has been to nullify the concerted action of the authorities of his institution and to offer to selected students special opportunity to follow his subject outside the curriculum under more or less personal supervision by himself. The student capable of more work than the required minimum is able to secure it through the favoritism and personal interest of his instructor, but he is not able to secure it exclusively through his ability to do the work.

The second answer is that of the student himself and is a more radical one. Such a student seeks the additional work he desires from instructors who have no official connection with the institution. In this way there has grown up in every medical center a system of theoretical quizzes and practical courses which has no official connection with the medical colleges. The full discussion of this question of unofficial extra mural instruction will form the basis of other fallacies. The true answer to the fallacy of the high school curriculum lies in the securing of extra work neither by favoritism from within nor by purchase from without the medical school. The true answer lies in the substitution for the inelastic fixed high school system of a truly broad adaptable university system of organization. Such a system must be a course system in which several possible ways of doing a certain work are offered at different times of the year and at different hours of the day. Interchangeable duplicate courses must be offered at least in all practical branches, and any student who has the ability to find the time and the desire to specialize should be able to take all or to repeat any number of the multiple advantages offered.

The third fallacy has to do with the confirmed habit of the medical student to modify the existing curriculum to meet his individual ideas. Each student is apt to consider himself the best judge of what he needs to perfect his medical education. In so far as the individual is able to supplement the present required minimum with extra work in dispensary or in hospital, the above assumption perhaps is true. But when a student begins to substitute other work for parts of this minimum of the curriculum, the assumption is fallacious, no matter how valuable the new work may be for itself. The commonest error for a student to make in this respect is to run away from his required duties and enter some hospital as a substitute for one of the house staff, who is absent on vacation or sick leave. Such substitute work in general is most excellent, but it can be considered in no sense an equivalent exchange for any part of the required work of the curriculum.

The work on the house staff of a general hospital is a most instructive experience and important addition to the more theoretical portions of a medical school's calendar. But such practical work can be considered as a legitimate part of any curriculum only as an addition to its more fundamental portions. A student can secure such practical experience after graduation and in fact will continue to add to his knowledge by constantly increasing his practical experience throughout his whole professional life. The refutation of this fallacy of hospital substitution lies not in the prevention of students taking such practical work, but rather in supplying such opportunities for bedside work as a part of the curriculum in addition to and not in place of laboratory and theoretical courses. The crying need of most American schools is the addition of just such courses in practical bedside work to their curriculum. A comprehensive system of medical clerks and surgical dressers to be filled by undergraduates in medicine is the present and urgent necessity both of the general hospitals and of the schools. And this school is earnestly seeking to supply its students with such advantages.

The fourth fallacy is founded on the idea that an hospital appointment is of greater importance than the taking of the degree of Doctor of Medicine. It is unfortunate that neither of these main objects of the work of the student of medicine can be secured by him, except upon the successful test of an examination. Of course, it is easy to understand the importance which is placed upon the tests for hospital appointments when one considers that the hospital examination is a competition against other individuals and only the upper few are chosen, while the test for the degree is in competition with a certain standard in which all the contestants may win the prize. This fallacy of the hospital appointment leads its victims into further fallacies which we have to discuss shortly, and acts as a disturbing element throughout the whole course of study in the schools. The answer to this fallacy lies in striking at the mistaken notions which have placed the hospital appointment on the highest pinnacle of medical student striving. The truth is that neither the degree nor the hospital appointment should represent the goal of the zealous and earnest student. The true object to be sought for is a thorough and universal knowledge of the

whole art and science of medicine. If a student can obtain in his four years of study a comprehensive training and a well-rounded understanding of the principles and theory of our profession, nothing can prevent that student from taking his degree and from securing a desirable interneship.

The nervous rush for hospital places tends to lead the student into a fallacious seeking after special points, and the next fallacy for our discussion is the fallacy of the medical tip. There is a widespread habit among medical students of trying to discover the personal views of the several attending physicians in the particular hospitals for which the student expects to try the examination. In the first place, such personal views represent in each attending physician only some temporary status and transitory point of view in the mental attitude of the physician in question. No physician has or can have exclusive points of view on such a subject as medicine. Such a conception is foreign to the best traditions of our profession and entirely out of harmony with a proper appreciation and study of any science and particularly of medicine. The science of medicine is not an exact science, and this fact cannot be impressed too early on the students of it. The cultivation of this fallacy of the medical tip leads students to take interest only in the immediately useful phases of medical knowledge. It leads students to neglect the broader view and to ignore the facts to be learned from a study of the historical development of medicine. It is bringing up a generation of doctors who will and who do fall easy victims to the cult of those modern idols represented by the secret or patented remedies of anti-this and contra-that. These modern "medicine men" are always working the newest fad to the neglect of the accumulated experience of the healing art. The science and art of medicine is not a race-track where tips and toots have any standing to lead one to pick the winner. The player of the game of medicine must leave nothing to chance, and he will find no short cut to success.

Another fallacy which is closely allied to the present system of competitive hospital examinations is the fallacy of the quiz. The employment of an extra tutor outside of the curriculum of any university is ordinarily made necessary by a failure of any student to come up to the standard of the given curriculum. In medicine, however, we find the peculiar paradox that an outside quiz master is sought not by the poorer students, but by those who stand highest and who are the best prepared. Such a custom has become engrafted on medical education as a result of habit and fear. It has been the habit of the best men for many generations of students to take a quiz; and the fear of failure in the competitive hospital examinations has driven the same men to this alleged panacea for their panicky feelings. The process of reasoning has been about as follows: The best men take a quiz and the best men get the hospital appointments, and the fallacious inference is drawn that they get the hospitals because they take the quiz. I am certain that I but voice the opinion of the majority of hospital examiners when I assert that the quiz is of but little help to a good student to pass the necessary examinations for entrance to any New York hospital. And I can positively assert that the faculty of the College of Physicians and Surgeons are of an unanimous opinion that the quiz, as at present organized, is rather a drawback and detriment to the proper development of a student of medicine than an assistance to him in his study of true and broad science. The modern quiz is the very hotbed where the fallacy of the medical tip flourishes under cultivation. The modern quiz takes no broad views of medicine as it has developed during the past and as it is developing in the present. On the contrary, the modern quiz attempts to bring all medical knowledge into a system of pigeon-holes in which every possible medical combination of diagnosis, pathology and therapeutics, shall have its labeled pocket. The excuse for such a system is that it puts men into hospitals. But it is more true that men get the hospitals in spite of the system and not because of it. The real misfortune of it lies in the fact that under such a quiz system the student, at the very outset of his career and in its formative period, is given a false idea of his chosen science. Such influences tend to lead the student back to the views of medicine when the various methodists and pathists were warring with each other for exclusive professional support and recognition.

Medical science cannot be brought into the subjection of any system of fixed rules which are characterized by containing the qualifying words *never* and *always*. There exists no medical fact or practice which has not numerous exceptions, no combination of symptoms which always or which never may be presented by certain conditions of disease.

I would characterize the final fallacy, which I wish to discuss, as an outgrowth of a very universal spirit of discontent with the existing order of things—the feeling that everything that is, is wrong. Such a spirit is felt to-day in every walk and relation of civilized life, and it has invaded the field of medical education, at least here in New York. It was my privilege a short time ago to visit a sister university in another city, and I was much impressed with the general spirit of mutual helpfulness that existed between all the departments of that university. The pathologist was anxious to tell me of the good work that was being done in the Surgical Department; the surgeon could talk of but little else than the recent achievements of the gynecologist, and so on. I warrant no one here ever heard a New York surgeon praise a gynecologist. I do not wish to see criticism disappear, but I do wish to see fellow-workers in medicine look for the good in the other man and not only at his bad points.

I do not wish to be understood either as standing up for the existing order of things as being perfect. The spirit of change is the prevalent spirit, but let us not seek or advocate a new thing just because of its newness and without first giving the existing conditon a careful consideration to learn if the new proposal is really an improvement, or if it is really some old, discarded fallacy cropping up again in new dress and form.

IS PARALYSIS AGITANS CAUSED BY DEFECTIVE SECRETION OR ATROPHY OF THE PARATHYROID GLANDULES?[1][2]

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OMITTING historical details of the recent researches on parathyroids, the following statements may be now taken as facts, the conditions in man and others of the higher vertebrates being virtually the same:

The glandules are generally four in number, though sometimes only two or three, occasionally five, can be found. In man they are in close proximity to the thyroid gland, two being normally present on each side, one above the other, behind the rear border of each lateral thyroid lobe. The human glandules vary in size from the dimensions of a grain of wheat to that of a grain of maize. They are soft, yellowish brown, and are covered with a thin fibrous capsule in which a peculiar and characteristic venous tracery may be noticed. They are hard to find, but by competent observers with sufficient experience they have been proved to be invariably present from early fetal life to extreme old age.

Microscopically, like the adrenal and pituitary, the parathyroids show solid columns of epithelial cells, rather irregularly disposed, and supported by variable amounts of fatty connective tissue, in which many vessels are present. This structure is constant for all animals so far examined, and after a little practice the sections are easily identified.

The precise physiology of the glands is unknown, but that they subserve an important function is unquestionable. The surgical removal of one, two or three from a cat or rabbit produces no signs except hypertrophy of the gland or glands remaining. The subsequent removal of the glands left behind, or the removal of all at one time, is followed in twenty-four to forty-eight hours by salivation, tachycardia, tremors and rigidity of the muscles, convulsions, albuminuria, enormously hurried breathing, entire loss of appetite, and rapid emaciation, the animal dying on the average in from two to ten days. Post mortem there are no constant gross lesions. With the microscope Edmunds,[1] MacCallum[2] and Russell[3] have noted disappearance of the Nissl granulations in the motor cells of the central nervous system and other minor changes.

In my hands dried gland of the ox or sheep administered by the mouth in proper dose to a parathyroidectomized animal relieves the symptoms for the time being, but I have not yet been able by this means to do more than prolong the animal's life; it ultimately dies in any case.

Without halting to theorize upon the precise nature of the parathyroid secretion, whether it be itself a substance essential to tissue metabolism, or an antibody neutralizing metabolic poisons formed elsewhere, or neither of these things, the practical question at once arises, as in the case of the thyroid and the adrenal bodies: Does disorder or atrophy of the parathyroid glands cause a recognizable disease of such definite symptomatology as Addison's disease or myxedema? And if so, can the disease be relieved or cured by administration of a properly prepared gland or gland extract?

This question is not a new one. Gley[4] and Edmunds[5] were convinced some years ago that exophthalmic goiter was the disease in question. Against this hypothesis there are now several weighty facts: (1) The symptoms in parathyroidectomized animals are dissimilar to those of exophthalmic goiter; (2) in several reported autopsies on exophthalmic goiter the parathyroids were found histologically unaltered; (3) administration of parathyroid, in any form so far tried, does not appear to relieve the symptoms of exophthalmic goiter.

Jeandelise[6] mentions infantile convulsions, epilepsy, tetany and *eclampsia* as worthy of consideration, but admits that his views can be hardly called more than suspicions. MacCallum, whose work upon parathyroids has been extensive and thorough, at one time (with proper reserve) suggested epilepsy,[2] and later has seriously brought forward *tetany*[7] as the solution of the problem.

In support of the latter hypothesis he reports an autopsy on a case of tetany in an old man dying of extreme dilatation of the stomach. Five good-sized parathyroids were found, *all showing numerous mitoses.* In view of the rarity of such mitoses in ordinary autopsies, he is disposed to conclude that tetanizing toxins from the stomach had made an extraordinary demand upon these glands—with this result. In the same paper he reports that in a woman of thirty-nine years year-long symptoms of tetany which had been specially trying during pregnancy and menstruation, were relieved by parathyroid medication.

Epilepsy having had but little support even by its own advocates, we need only comment upon tetany that the disease itself is a rather vague and variable clinical syndrome and the condition

1 Read before the New York Academy of Medicine, October 5, 1905.

2 A detailed account of some work of mine on parathyroids for several years past, comprising about 125 autopsies on man, some 50 experimental operations on dogs, cats and rabbits, and a number of therapeutic experiments in the laboratory on these animals with various forms of fresh and dry ox-parathyroid, I expect to publish at length in the forthcoming volume of the Presbyterian Hospital Reports.—W. N. B.

in the one autopsy reported might be quite as readily explained in some other way.

My own contribution to this obviously difficult question is that atrophy or insufficiency of the parathyroid glands is perhaps the cause of *paralysis agitans*. Freely admitting the present inadequacy of the proofs I offer the following considerations:

(1) In studying slowly dying parathyroidectomized rabbits in the laboratory of the Presbyterian Hospital nearly eighteen months ago, it struck me at once, without ever having specially reflected on the pathology of paralysis agitans before, that the symptoms, in the animal, while *sui generis* in many ways, might be viewed as much more suggestive of this disease than of any other at that time commonly considered in the same connection. The evident disparities would naturally follow when the symptoms resulted in one case from abrupt surgical intervention, and in the other from a slow degeneration.

(2) On reference to the literature it will be found that as long ago as 1893 Dana[8] seriously suggested paralysis agitans as due to a "microbic or humoral toxin" circulating in the blood and having an especial affinity for certain areas of the spinal cord and medulla. Again in 1899[9] he wrote: "It has long since occurred to me that possibly the disease might be the result of some defect in glandular secretion," and he mentions having actually tried upon various patients thyroid, thymus, pituitary body, cerebrin, testin, adrenal, etc. "Thyroid gland makes the patient decidedly worse. The use of pituitary gland in large doses quieted the patient for a time, but this is only temporary and the quieting effect I have seen produced in other cases."

The same opinion—that the disease is an endogenous toxemia—has been repeatedly expressed by other neurologists. Moebius[10] in 1898, Frenkel[11] in 1899, Burzio[12] in 1902, the Spanish observer Jose Codina Castelvi[13] in 1903 and Lundborg[14] in 1904. Schiefferdecker,[15] in a recent extensive pathological report on the condition of the organs in paralysis agitans, points to the same condition.

Some of these writers have suggested the thyroid gland as the organ at fault; Luzzato[16] in describing a case (to be mentioned again below) suggests thyroid *or* parathyroids as involved secondarily in the etiology (his original paper is guarded in its expressions and his meaning rather obscure), and Lundborg, whose latest paper (which I first saw some eight months after my own notion was conceived) dates from last November (*loc. cit.*), suggests precisely my own guess that the disease is due to insufficiency of the parathyroids alone. He adds that his conclusion is a clinical induction only and is confessedly "äusserst hypothetisch."

(3) Working further on this line during the past year I have found opportunity among medical friends to administer a physiologically tested gland to eleven cases of shaking palsy in all grades of advancement. In more than half of these cases I have complete notes; it is not worth while, however, to-night to do more than summarize results.

A case of Dr. J. Ramsay Hunt's, of which I have no data except that it was an "early" one, was some six weeks later reported negative. A case in Dr. Dana's hands was much benefited. Of three patients tried by Dr. A. Alex. Smith, two reported themselves considerably improved. The third was desperately ill of suppurative complications, and refused to take the remedy but a few days. A very advanced case in Dr. F. L. Taylor's practice was distinctly benefited, though this patient had grave complications which precluded much hope of permanent relief. A case of long standing in the care of Dr. St. G. T. Grinnan, Richmond, Va., was improved. A case in the hands of Dr. F. Peterson, of New York, and Dr. H. H. Janeway, of New Brunswick, N. J., was distinctly improved. Improvement in this case has been steadily progressive and was reported to-day by Dr. Janeway as "really extraordinary." A case of Dr. Robert Kingman, of Brooklyn, was greatly improved. Of two dispensary cases of my own one patient returned only twice after receiving the medicine, but claimed he "felt better," and certainly was visibly relieved. The other—a tailor, fifty-four years old, case of one year's duration, characteristic Parkinson tremor in left hand—was so much relieved in five weeks that he could eat with entire comfort and thread a needle with the affected hand, which he said he had been entirely unable to do since he was first attacked.

All the patients remarked upon a curious increase in courage, comfort and mental energy while taking the remedy.

There is a quantity of the gland now on the market which can be given in enormous doses without any effect whatever, and the use of which will only invite disappointment. The only effective preparation that I have been able to obtain from commercial laboratories has been from Armour & Co.[1] This preparation varies much in potency, and should not be used unless it has been tested physiologically beforehand. It degenerates rather rapidly, and should be kept on ice till used. The initial dose of the powdered gland is one-twentieth grain two to four times a day, preferably in capsule; larger doses appear to produce weakness, constipation, "nervousness," and even an exaggeration of the symptoms of the disease. The first good effects in the cases treated were noted as a rule only after fifty to seventy-five capsules had been taken—two or three weeks after beginning treatment. My supply of good gland has been very limited, and the remote effects of the remedy are still unknown.

To sum up my therapeutic results, the remedy has been more or less fairly tried on eleven cases;

1 I have to thank Dr. Frank M. Bell, of the Armour Laboratory, Chicago, for many courtesies in this matter.

of these, nine patients were helped, the earlier cases were greatly helped, and one of my own patients, a very early case, considered himself nearly entirely relieved while under the influence of the drug.

One patient reported that the tremors most recently appearing in the course of his case were much more perfectly relieved than those of longer standing. This may indicate that the cellular changes inducing the characteristic movements in Parkinson's disease are ultimately of an incurable degenerative character. This is, however, only an incidental surmise.

(4) Certain facts of recent medical literature are of value, or at all events of curious interest.

It was noted above that in autopsies on exophthalmic goiter the parathyroids have been several times reported unaltered. Two recent autopsies on sporadic cretinism in children (Peucker[17], Maresch[18]), very carefully reported, showed in one case *two*, in the other *four* histologically normal parathyroids lying behind the atrophied thyroid. These facts, as far as they go, would indicate that the parathyroids have no causal relation to either myxedema or Graves' disease.

At the same time Lundborg (*loc. cit.*), Moebius (*loc. cit.*), Luzzato (*loc. cit.*) and A. Gordon[19] have lately reported cases of *concurrent* Parkinson's disease and myxedema, and *concurrent* Parkinson's disease and Graves' disease—the symptoms being characteristic and the diagnosis unquestioned by all who saw the patients. Of several autopsies obtained, no examination was made, unfortunately, as to the presence of the parathyroids. While other explanations are possible, it may be suggested—with due reserve—that the parathyroids were diseased or atrophied in these cases through contiguity with the diseased thyroid. It would be entirely unscientific, however, to call this more than a suggestion.

(5) The final disposal of my proposition will hang upon autopsy findings. My ill-success, in spite of earnest efforts during the past year, in securing a single post mortem on a case of Parkinson's disease, is my principal reason for reading this paper—that attention may perhaps be called to the possibilities involved, and that pathologists who have such material at hand may be induced to study and report the conditions.

Until then no one can acknowledge more frankly than myself that my hypothesis is little more than a reaching out into the dark.

Meanwhile, however, the clinical results (in a disease heretofore utterly intractible) from administration of a properly tested gland are, I think, worthy of note. When a more perfect form of medication has been devised—a hypodermic extract, or even a grafting of the gland itself from one human being to another—the results may be much more encouraging. Upon this I hope to report at greater length in future.

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ETIOLOGY, GROSS PATHOLOGY, SYMPTOMS AND SURGICAL TREATMENT OF PYOSALPINX.[1]

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IN the practice of many of us the pathological entity known as pus tube attracts possibly more attention than the much maligned appendix vermiformis. Producing as it often does acute surgery, the patient more readily feels the need of radical relief than she would were she afflicted with some of the lesser ills, whose presence constitute a discomfort rather than an immediate menace to life.

Predisposing Causes. — The predisposing causes are abortion, labor, instrumentation and manipulation, infections in neighboring organs which may reach the tubes by extension, tubal disease being rarely primary, menstrual congestion, injudicious exercise at the beginning of menstruation, taking cold during menstruation, tortuosity of the tube, retrodisplacement of the uterus, excessive coitus, acute exanthemata, visceral disease, as of the heart, lungs, liver and kidneys; constitutional disease, as syphilis, chlorosis; autotoxic states, as gout, rheumatism and cholemia. The mere fact that the vagina and vulva are usually infected is in every way favorable to uterine and tubal infection. Piltz found the vulva of the non-pregnant woman infected with pathogenic germs (excluding gonococci) in 88 per cent.; *Bacillus coli communis* in 70 per cent.; *Staphylococcus pyogenes albus* in 60 per cent. In these cases 40 to 56 per cent. had urethral infection, the ratio being constant with the vulval and vaginal infection. In pregnant women 68 per cent. have vulva infection; 32 per cent. urethral infection, while in the puerpera 100 per cent. have vulva infection and 86 per cent. have urethral infection. Being so near at hand, it is an easy matter to carry the infection from the vulva to the vagina and

1 Read before the Virginia Medical Society, October 25, 1905, at Norfolk, Va.

uterus. Gonococci are very prevalent in the vaginal secretions of the pregnant woman and increase in number markedly after labor. Certain classes not only practice coitus up to within a short time of delivery but renew the practice very soon after.

Direct Causes.—The bearer of the infection in many cases is the husband, not infrequently the midwife, and sometimes the doctor. The omnipresent and eternal gonococcus here calls for a large share of honors. Inasmuch as fully 90 per cent. of all men acquire gonorrhea and a very small percentage, if any, are really cured (Noeggerath has said none recovered), the sequence of pelvic infection and its subsequent laparotomies, ophthalmia neonatorum producing one-sixth of the blindness of the world, not to mention the many dangers and complications besetting the individual, who almost knowingly acquires this loathsome disease which sets its blight upon the fairest of our land. This affliction leaves a wake of whited sepulchers as its bequest to mankind. The veriest trace of gonorrhea should be a bar to marriage, the man subjecting his victim to the dangers of a foul infection, which too often entails long-continued suffering, sterility and possible death. While we look lightly on the dangers to which we are accustomed, the physician who advises or permits marriage to the gonorrheic without a protest should have a care.

According to the best statistics obtainable on the subject, 62½ per cent. of pus tube cases are due to gonorrhea; 16 per cent. to incomplete abortion; the remaining 21 per cent. of uncertain origin; Sanger and Von Rosthorn found tubal disease in 33 per cent. of women afflicted with gonorrhea.

Inflammation of the Fallopian tube is nearly always directly due to bacterial invasion, the infection usually extends directly from the uterus by continuity of the tubal and uterine mucosa, occasionally from the peritoneal cavity, from hollow viscera, as from the intestines, or tumors containing bacteria, from the infected appendix, through the lymph channels of the pelvic connective tissue, rarely through the blood vessels, it can in exceptional cases be produced by mechanical disturbances, as massage, vaginal examinations and operative injuries, pressure of tumors, by thermic changes, as taking cold, and chemical agencies, as the introduction of solutions through the uterine cavity. While the infecting bacteria are usually gonococci, streptococci or staphylococci (*albus, citreus or aureus*), or a mixture of all three, exceptionally and occasionally are found in isolated cases pneumococcus, bacillus of malignant edema, Klebs-Loeffler bacillus, the fungus of actinomycosis, *Bacillus coli communis*, stralen pilz, *Bacillus tuberculosis*, *Bacillus typhosus*, and saprophytes of various sorts. The extent of involvement and destructive influence of the disease are dependent upon the activity of the infecting poison and the degree of resistance of the individual. The vagrant streptococcus wandering in chain-like fashion, readily makes known its mission of disease and death. The toxins of the streptococci are quite virulent in character and are capable of producing thrombosis, infarction, necrosis, etc., by their local action. The staphylococcus has a marked tendency to local action and causes less transudation and swelling than the streptococcus.

The pus tube infections may gain entrance through lacerations of the perineum and cervix and other traumatisms of parturition and surgery. All extra tubal infections usually result from a prime source in the uterus or tube, this is the usual origin of pelvic cellulitis. Inasmuch as the micro-organisms of many infectious diseases have been quite generally found in the genitalia, it is but an easy matter for them to be introduced by uncleanly operations, by local treatments and by examinations. The hand of the careless doctor and the unclean finger of the ignorant midwife have many sins to atone for. The fashion of women's garments and the filthy condition of our streets facilitate the upward reach of numerous bacteria. Hematosalpinx and hydrosalpinx often are but successive steps in the stair from gonorrheal or puerperal infection to the destructive reality of pus tube, these inflammations even in mild form distort the tube, destroy the epithelial lining and agglutinate the walls in places, favoring the retention of secretions and the subsequent formation of collections of pus, hematosalpinx may be formed as the result of menstrual blood being forced from a hematometra into a tube having its abdominal ostium closed, from tubal pregnancy, from hemorrhage in the tubal wall, it may then form adhesions to neighboring intestines, become infected and suppurate.

Gross Pathology.—Puerperal inflammation of the metrosalpinx is usually an exudative inflammation coming through the lymph vessels. The fibrinous coating is at first spider-web like in its delicacy of structure, thickening, however, with the duration of the disease. This variety of tubal inflammation often produces a sero-gelatinous infiltrate or collections of greenish or yellowish purulent material. After the organization of the exudate adhesions to neighboring structures abound and there are usually encapsulated collections of pus. At times the virulence of the streptococci may be so great and infection so swift that the peritoneum is only reddened before death occurs. In the milder grades of hyperemia the tube is thickened, dark red or blue red in color. In more extreme cases small hemorrhages may take place in the muscularis and the mucosa, blood may collect in the lumen of the canal, hyaline degeneration and necrosis may result. If the bodily resistance is great and the virulence of the germs weak the process of suppuration will be slow, the pus collections will be numerous and the adhesions many. All the coats constituting the walls of pus tube are usually much thickened and infiltrated. Occasionally only the tubal mucosa will be involved, with a resultant purulent

endosalpingitis. An extension of the inflammation, producing pyosalpinx, seals the abdominal and perhaps the uterine ostium of the tube and results in a collection of serum, blood or pus, according to the degree of virulence of the infection and the resistance or want of resistance in the individual. The ovaries may be infected by the direct passage of pathogenic germs into an ovary rendered vulnerable by a recent rupture of a Graafian follicle or by an infected tube becoming adherent to a cystic ovary, the cyst being converted into an abscess. Purulent collections are usually associated with extensive pelvic inflammation. While small collections frequently remain in the tube, large collections usually result in rupture of the tube and the formation of abscess in the broad ligament or an encysted collection of pus in the retro-uterine space. With the advent of suppuration nature tries to bar the way to general peritoneal infection by building a Chinese wall of exclusion, a sort of barricade in the Quartier Latin. All is grist that comes in the way of this molding, cementing, gluing, plastic peritonitis, lymphatics are plugged, blood vessels thrombosed and hollow viscera and omentum joined together in whatever shape the vagaries of chance and peristalsis may have chosen to leave them. Sometimes the pelvis is entirely shut off from the abdominal peritoneal cavity by nature's policy of protection. Through adhesions of the fimbriated extremities to adjacent organs or by inversion of the fimbria into the lumen of the oviduct and adhesions of their peritoneal surfaces, the abdominal ostium of the tube becomes closed, leaving the end blunt and round, the "club-shaped" tube. In less malignant cases the fimbria may be found spread out upon the surface of the ovary and adherent thereto, causing a thickening of the ovarian tunic. The canal of the uterine end may become obliterated or stenosed through edematous and adhesive changes in the mucosa.

The tube may be strictured, folded upon itself, knotted, tortuous and distorted. It may assume the shape of a pear or other irregular object. Cystic distentions may vary in size from the little finger to a hen's egg, rarely reaching the dimensions of a fetal head. Constrictions may divide the tube into various compartments, each of which may contain a different fluid. As regards position, the tube may be normally situated at the side, or on top of the uterus, its favorite position is in the cul-de-sac, adherent to the posterior surface of the uterus. The increased weight of the tube naturally causes it to gravitate toward the bottom of the cul-de-sac. The salpinx is at first covered with fibrinous or purulent exudate, later with organized tissue and adhesions. In many cases the tube may be completely buried in plastic exudate. The muscular wall is thickened and swollen (in long-standing cases the wall may be much thinned). The mucosa may be completely destroyed and the inner surface of the tube covered with granulation tissue or a pyophylactic membrane. The contents of the tube are according to the stage and nature of the infection, muco-purulent, purulent or caseous in character.

Abscesses may form in the adventitious tissue alongside of the tube—perisalpingitis abscesses. A pyosalpinx may rupture into the abdominal cavity or through adhesions into intestines and bladder, vaginal or abdominal wall with the formation of a fistula. If after the rupture of a pelvic abscess into a neighboring cavity, the abscess walls are quite elastic, the pus cavity will rapidly contract, fill up and become obliterated; if, on the other hand, its walls are comparatively hard and unyielding, it will intermittently fill up and then discharge its contents through the sinus, rarely an abscess forms in the uterine cornu. Often when the abdomen is opened, at first sense of sight or feel, the sactosalpinx and pelvic organs will have been so united by the "common ties" of adhesive inflammation that all seems as did nature in the beginning, "without form." Our esteemed countryman, Joseph Price, has aptly described the pathological female pelvis as "a mass of knots, snarls and twists of tube, bowel, uterus, adhesions," etc.

Serum and pus may collect between coils of intestine, forming so-called intraperitoneal abscesses, these are single or multiple and located in any part of the pelvis. The disease may be equally bilateral, but such seldom is the case. Small pus collections produce no displacement of the ureter, while larger ones displace outward usually, and downward rarely. These displacements are due to traction by the distended tube on the infiltrated broad ligament, and by direct pressure from the abscess itself. While rare, it is barely possible for the ovary to escape harm from the germs and toxins escaping from the tube. The continued absorption of toxins produces a marked effect on the entire body of the patient, who frequently becomes anemic and emaciated, haggard and worn in appearance, a wrecked and broken semblance of her former self. The contents of pelvic abscesses may vary in appearance from a thin puriform liquid to thick yellow matter, at times green or mixed with blood, may have a fetid odor suggestive of garlic. If the abscess and the patient last long enough and the reparative powers of the body come to the rescue sufficiently, the pus may be converted into thick caseous material known as archepyon; when this happens we may have a spontaneous cure.

Symptoms.—Symptoms are: Chill (often), pain, tenderness, elevation of temperature and prostration, the development of a sausage or other shaped mass in the pelvis (usually posterior to the uterus), discoverable by combined abdominal palpation and digital vaginal examination. By reason of mechanical interference; pain on defecation, and urination is a marked and prominent symptom, costal respiration, anxious facies, dorsal decubitus, knees drawn up

to relax abdominal muscles, to nurse and protect the inflamed pelvic viscera, abdominal rigidity which is not so marked or severe as in strictly abdominal conditions. The pain is frequently severe, at times of the paroxysmal type, and may radiate down the thighs or be confined to the back, vomiting is an occasional symptom. These symptoms increase with the increment of the disease. In the less virulent types the symptoms are milder but are as a rule quite prolonged. The symptoms naturally vary greatly according to the stage of the disease and the variety of the organism producing the infection. Burning pain made worse by pressure and intervals of comparative comfort are experienced by the sufferer. In gonococcic salpingitis there may at first be no pronounced pelvic mass. The initial passage of pus to the peritoneum is marked by peritonitis. Subsequent attacks may be as acute as the primary one, but as a rule are not. Often a case will run like this: A woman having a history of bladder disturbances, burning pain on micturition, or whites, will be suddenly seized with sharp pain in the lower abdomen (perhaps worse on one side than the other), associated with constipation, distention of the abdomen, fever, increased pulse rate and more or less prostration. In these acute attacks the pain and tenderness may be so great that little or nothing can be learned without the administration of an anesthetic. The gonococcic variety frequently subsides and remains quiescent for a time, only to burst forth anew with fresh violence. The patient's condition varies from mild invalidism to total incapacity, she feels that she is of no use to her family and burdensome to herself. The continued absorption of purulent material into the system debilitates and eventually brings the inevitable breakdown. Chronic invalidism is a natural sequence of prolonged tubal disease. The disease is often quiescent for a time, then bursts forth with fresh fury, the attack of pelvic peritonitis comes on suddenly with a chill and sharp pain. Constipation may be the result of the pain on straining at stool or of a rectal stricture due to the bulging and bridging of the rectal wall by inflammatory masses. Frequent urination may be due to the implication of bladder or ureters. Cystitis may result from extravesical pelvic infection. The pain is always increased when there is coincident ovaritis. During the monthly period the pathological congestion is supplemented by that of menstruation, hence dysmenorrhea is the rule. The more gradual the swelling, the greater will be the opportunity for the adjacent parts to adjust themselves to new surroundings and the mechanical disturbances will be lessened. The chronic case may never feel quite well. A morose and melancholy state of mind is often developed, the patient dwells perpetually in mental jungles, she never emerges from the gloomy shadows into the bright sunshine of life, she may have in addition to her physical ills a sick soul that will not be appeased. Monthly exacerbations are common, the colica scortorum of the prostitute, impaired digestion, headache, backache, pelvic uneasiness, and vaginal discharges. Chilly sensations and sweats are common, exposure, overwork, fatigue, coitus or no apparent cause in particular may be the forerunners of repeated outbreaks of localized peritonitis. The onset may be exceedingly gradual, and of the most insidious type. In chronic cases the pulse is often good and the general condition otherwise excellent. The gait and attitude are often characteristic, a woman will be seen showing a constant tendency to place her hand over the lower abdomen, the position is a little stooped, the steps are short and mincing and to the man who sees it is plain that an exquisitely tender object is being nursed and protected from jolts and jars with the most solicitous care. Reflex symptoms will often be associated with the cerebrospinal and digestive symptoms. The streptococcic infection frequently dates from abortion, instrumentation or confinement, the onset is sudden and severe, the pulse becomes rapid, the facies is peculiar, septic poisoning is shown by the temperature, pulse, general depression and anemic condition; abdominal distention and tenderness are marked, these cases are usually bedridden from the beginning of the attack. Sudden elevation of the temperature during an attack is always a serious symptom, indicative of a marked extension of the trouble.

Rupture of the abscess in the peritoneal cavity when the pus is infectious is marked by signs of collapse followed by a rise of temperature. Sterile pus may only produce a sudden elevation of fever. The presence of pus may be detected by the observance of fluctuation transmitted through the rectum or vagina to the examining finger. A tense and stony hardness is often all that can be felt.

Treatment.—The treatment depends upon the character and extent of involvement, our aim should be the preservation of life and the restoration of health with the least possible sacrifice of the pelvic organs and disturbance of their physiologic functions. The day of sacrificial and mutilating operations without urgent indications has forever passed. Overconservatism is quite as bad as the most ultra-radical cutting and slashing. To accomplish results in these cases, we must be ever on the alert, ready to attack the insidious encroachments of disease promptly and boldly when the time is fitting. It is here as much as anywhere in the broad domain of surgery that the finer surgical sense and judgment, born of inherited traits, of acquired skill, and of ripe experience are needed. So numerous and varied are the manifestations of this hydra-headed monster that each case is a law unto itself, as regards treatment. The operator should never begin a case with a fixed determination to do any particular operation.

There will probably always be some doubt as to whether or not every acute case should be

drained in the beginning. Some, as Henrotin and others, believe in opening up the cul-de-sac in all acute cases, in working well up into any abscess forming localities on the sides and posterior wall of the uterus and inserting plenty of plain or iodoform gauze drainage. This procedure has a very low mortality and is productive of most excellent results. A large number without any very pointed reasons prefer *to wait* in all acute cases until the active inflammatory process has ceased. The vaginal route in the acute stage is infinitely to be preferred. By its use we avoid breaking down the barriers nature has so strenuously and hastily built to protect the general peritoneal cavity.

After the formation and localization of pus in appreciable quantities there is a stringent indication to remove it. This can be done per vaginam with absolute safety to the patient, when accomplished by the abdominal route even by the best hands there is a considerable element of danger. However, chronic cases will not as a rule make complete recoveries without enucleation of the sactosalpinx. In the process of enucleation of a pelvic abscess the utmost care should be taken to prevent the soiling of the operative field by pus. By the aspiration of abscesses, by the use of judiciously placed gauze towels, by careful dissecting and sponging, much can be done to prevent such contamination. The distortion and general confusion of the organs and tissues may be most bewildering. Often but little can be ascertained by the sense of sight. In such cases the best eye is that one on the end of the finger, the educated finger that not only feels but sees and thinks in a judicious manner. The body and top of the uterus is a central landmark which must be sought out and from that point the natural lines of cleavage may be found. Adhesions must be gently separated by a to-and-fro motion of the fingers, by careful sponging, by pinching or by cutting those more dense. Whenever it is possible to leave an ovary or tube in whole or in part, do so. You will save to the woman the natural function of the ovary and probably the opportunities of conception and motherhood. The utmost conservatism of function and structure should ever be the surgeon's guiding star.

All intestinal injuries must be repaired. So far as possible cover all raw surfaces with peritoneum for the prevention of new adhesions. Bleeding points should be looked after with care. Use catgut for sutures and ligatures. A heavy piece of silk about a pedicle will often act as a foreign body and pave the way to future trouble. Do not ligate ovaries, tubes, etc., en masse, leaving a large necrotic stump for nature to look after. Dissect out the uterine ends of the tubes even into the uterine cornua, ligate the ovarian vessels and close the wound by suture. Drain all seriously infected cases operated on abdominally by way of the posterior vaginal fornix. Either arrange the drains in the cul-de-sac before closing the abdominal wall, then cleanse the vagina, draw the cervix forward and upward with a volsellum while the operator readily cuts down on the previously placed drain (Haggard), or incise the vaginal fornix on the finger of an assistant, the rectum being protected by the previous insertion of the operator's gloved finger. Drainage should be plentiful and should remain in situ at least a week, after which it can usually be removed with ease.

At times the density and widespread character of the adhesions contraindicate any attempt at removal. Every surgeon of experience will remove organs at a later stage of his career which earlier he would not have dared undertake. Tait in his work was not deterred even by the necessity of opening bowel or bladder. Whenever septic intoxication appears operation is at once advisable. In acute cases time spent in removing lymph flakes or fibrinous deposits from the bowel or in the separation of adhesions is worse than wasted, it may open up new avenues for infection, produce new adhesions and may mean the death of the patient. Free drainage is the key-note in these acute processes. The vaginal drain is superior to any other for the reason that its drainage is favored by gravity, the abdominal cavity is not in such danger of being contaminated and the possibility of hernia is practically nil. In those who are very ill the vaginal method of evacuating the pus is the only one permissible, a secondary operation for the removal of diseased uterine adnexæ can be performed under more favorable auspices later. Active surgical interference should be the rule in nearly all cases. Vaginal evacuation is the simplest plan of treatment for abscess cases and entails few risks to life. A small opening should be made with sharp-pointed scissors (avoiding the uterine arteries, rectum and ureters), this should be dilated, the finger introduced and a careful search made for secondary abscess cavities, which, if found, should be opened and gauze drainage inserted. In these cases the drains should be removed every day or two, the cavity irrigated and new drainage inserted. While the vaginal route is the one of choice for drainage and evacuation of pus, the present trend of gynecologic surgery is toward the abdominal route as a routine for purposes of enucleation.

Hysterectomy with complete extirpation of the ovaries and tubes is at times indicated, viz., when previous conservative efforts have failed, when the uterus is buried beneath masses of adhesions, badly involved in inflammatory products, when there is probably an incurable metritis, when the uterus contains myomata and in cancer of the body or cervix, while the removal of the organs en masse completely removes all foci of infection, the operation dangers are greater and many neuropathic phenomena may supervene. An unusual effort should be made, especially in young women, to preserve to them the possibilities of conception and motherhood and to obviate the distressing sequelæ of an artificial

menopause. In such cases we may count largely on the natural restorative powers of youth and endeavor to assist nature by resections and plastic operations to restore a *restitutio ad integrum.* After the end results of pus tube have been reached the conditions are often favorable as regards a cure for sterility. In cases where there is a possible future hope for a functionating tube, split open a club-ended tube, straighten out the fimbriæ or suture the delicate mucous lining to the peritoneal covering to ensure the potency of the tube, loosen adhesions whenever practicable in order to release the tube from tortuous and restricting positions.

Report of Cases.—I have enucleated thirty-eight consecutive cases of pus tube without a single death. A number of these were drained per vaginam and two through the abdominal wall. In most cases if pus escaped in the pelvis it was carefully sponged away. Only one case was irrigated and her convalescence was especially stormy. In one case, coming to the hospital *in extremis,* I opened a large abscess per vaginam and she died the day after. Many of these cases had been neglected for a long time and were in correspondingly bad condition. When the lower pelvis was full of pus vaginal drainage was always used. Sometimes the cul-de-sac was opened after the abdominal wound had been closed, as advised by Haggard, but as a rule this was done while the operator's hand was yet in the abdomen. The bowels were completely emptied before operation, and no attempt was made to secure purgation for several days after. A scant liquid diet, non-putrefactive in character, was used during the immediate post-operative period. So far as I have been able to trace my cases there has been no recurrence of the trouble. In all old cases where I have only had the end results of tubal infection to deal with, I have invariably done plastic work with the hope that the mechanical and physiological functions of tube and ovary might be restored.

Summary.—Chill, fever and sweats run riot, and in the acute stages the general systemic disturbances are pronounced. Nagging pain and general malnutrition are characteristic features of the chronic types. A careful study of symptoms makes diagnosis easy. The importance of gonorrhea as an etiologic factor is due to the great frequency of that disease and to the rarity of cures in the male. The protective conservation of plastic peritonitis and the systemic and generally depressing effects of the disease are marked features. While complete enucleation and vaginal drainage are not by any manner of means advocated as routine measures, the final results of those procedures are excellent, there is seldom a recurrence of the trouble and if the work is carefully and skilfully done the mortality is low.

I wish to call particular attention to the value of plastic surgery in the treatment of the end results of pelvic peritonitis.

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HEADACHE.

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AT first sight it would seem that the discussion of so trite a subject as headache would demand an apology for the time consumed. But a moment's reflection will call to mind the fact that there are few symptoms with which we are called to deal which prove more vexatious and often more intractable and unresponsive to remedies. Not only is this true, but the multitude of remedies, proprietary and quack, which are used by the laity empirically, and without consulting a physician, and without a competent appreciation of the cause, and often with most harmful results of injury to health or the engrafting a drug habit. Nor can all the members of the profession plead "not guilty" to the use of these agents, or to a lack of appreciation of or discrimination of the cause. It is my desire in discussing this symptom to call attention to the causation of headache in all its phases, and to urge a careful analysis of the conditions back of it, and the use of a rational therapy in its treatment. I grant you that often the causes are difficult or impossible of recognition, and that we are forced in a measure to empiricism. But the locality of the pain, the question of its centric or excentric origin, the nature of its reflex, and the question of the pathologic condition outside of or within the nervous system are the problems demanding solution for its rational relief. That not infrequently the headache persists when we have located the cause, in spite of all we do, there being simply amelioration periods, and then periods of intense exacerbation, is a fact we must face, as though a habit difficult of eradication had been formed. These are the cases which stand in such jeopardy of having a drug habit, of cocaine, morphine, chloroform, acetanilid, or some other harmful agent, engrafted upon them, and which should keep us alert to avoid and prevent such an untoward accident. I think we scarcely appreciate the wholesale and harmful use of so-called headache remedies used by the laity empirically. One wholesale house handles twelve of these preparations, and I am told that the proprietor of one of them sells over *half a million dollars worth annually*. I am also informed that one of the largest pharmacal firms in the United States handles seventy-five preparations and that acetanilid is the basic constituent of most of these preparations. Some of these formulæ are dispensed in the form of effervescent salts and some in tablet form. In the number of the *Journal of the American Medical Association*, June 3, 1905, appeared an article on "Chronic Acetanilid Poisoning," by Dr. D. D. Stewart, of Philadelphia; every medical man should read that article and ponder over it to his profit. Remember that the taking of these headache remedies by the laity is a habit, *a drug habit*, and when we understand and appreciate how depressant they are on the heart, how the basis acetanilid damages the integrity of the blood cells, we realize how nutrition is impaired and the foundation laid for more serious maladies, especially of the nervous system. I have specified acetanilid because it is most used, but the statement should be broader and should include all of the coal-tar preparations. Dr. Stewart's observations and the blood tests made by Dr. Ghrysky show chocolate color of the blood and granular degeneration of the red blood globules. "The symptoms of severe chronic poisoning from acetanilid and kindred coal-tar derivatives show progressive mental and physical debility, cardiac weakness more or less pronounced, cyanosis, characteristic blood changes indicative of the pernicious action of a hemolytic agent." It is not necessary to quote farther, but the significant question arises as to how far these agents may be causative in the production of mental disease. Anodynes with acetanilid as a basis are used in insane hospitals; how much do they contribute to the physical depression and interfere with nerve nutrition which tends to make these cases incurable? In view of these facts it behooves us to utter a note of warning, and so far as the prescribing of these preparations is recklessly done, and I believe it is widespread, to call a halt, and exercise greater care in the future than has been done in the past.

The headache from eye-strain is situated over the brow, and is persistent in character, extending in aggravated cases to the top of the head. The most distressing feature is its persistency rather than acuteness. The sufferer has a clean tongue, and the organs all seem to be performing their functions normally. Only temporary relief, or no relief, comes from drugs, and the headache is intensified by using the eyes. The remedy is plain—properly adjusted glasses and the persistent and continuous wearing of them—relief will not come if they are worn spasmodically. If headache is due to nasal lesion, the pain is more neuralgic in character, and inspection of the nasal cavities reveals more or less inflammatory condition, enlarged turbinate, spurs, etc. The treatment for its relief is plainly indicated in the cure of the local condition. The feeling of tension and pain due to inflammation of the frontal and other nasal sinuses which we see in acute coryza, points to such general medication as will cure the cold. General malaise and aching in the limbs is a common accompaniment. Neuralgic headache is regional and spasmodic, and much more acute than headache from other causes. The most frequent form of headache with which we have to deal, is digestive. Disordered digestion, acute or chronic, developing excessive acidity. The pain is diffused over the vault of the cranium, being most intense over the brow, gives a sense of tension and throbs most distressingly and is

1 Presented to the State Medical Society of Virginia, at its meeting in Norfolk, October 12, 1905.

sometimes very acute. Occasionally a sense of dizziness will be present and some acid eructation. No remedy is more prompt in relieving this form of headache than a simple emetic. The intense headache from constipation is a familiar condition, relieved by a free purgative and cured by systematic regulation of the bowels. This should be done not by the injudicious administration of drugs, but by a proper regulation of diet, and such therapy only as tends to arouse and develop a healthy tone in the alimentary canal, not omitting as most important, the question of habit in going to stool at a regular time daily. One important factor in this respect is to be sure that torpidity of the liver is overcome, and a proper and healthful secretion of bile ensured. The liver is the great crematory of the body for the burning off and elimination of effete products. When the liver is derelict, headache is dull and situated in the occiput.

The kidneys have no less an important function. We see a dull, wearing headache diffuse over the whole cranium, in the early stages of Bright's disease, with more or less tendency to drowsiness, accompanied by a scanty secretion of urine; indications for palliation and relief are plain. The headache of lithemia is often dependent upon deficient renal secretion. In its more acute forms, it is located in the temporal region, most commonly the left, the eyeball feels sore to the touch, and when it moves in the orbit; when extreme it extends to the vault of the cranium. The indications for treatment are along dietetic lines, abundant exercise, and an improved general hygiene. There can be no routine treatment, for people differ, sometimes widely, in their susceptibility to gouty development from articles of food, what produces gouty conditions in one person being perfectly innocent to another, and even differing at different times in the same individual. One of the most common causes of reflex headache is from uterine and ovarian sources. The characteristic of this form of headache is that it comes on during the latter part of a period or after it has stopped. Coincident with it if the period has not ceased is a scanty condition of the flow, and it has become dark brown or blackish and granular, indicating lesion of the endometrium. The location of this form of headache is in the occiput and extending down the back part of the neck, when violent over the vault of the cranium. The headache at the beginning of the period is different in character; it is diffused all over the head, and there is a sense of fulness and tension; patient is abnormally sensitive to noise. Amelioration or relief comes when the flow is fully established, and it is usually of a good, bright, healthy color. Excessive congestion or engorgment of the uterus is the pathologic condition in these cases. The treatment in the two varieties of headache is radically different. In the first, positive treatment to cure the endometritis, i.e., divulsion and curettage, is demanded. In the second, often the administration of a mercurial purgative a day or two before the establishment of the period will much ameliorate or prevent the attack. In both instances it is not uncommon to have distressing nausea prominent as another symptom of the reflex. The clavus hystericus located in the parietal region, and oftenest on the left side, is one of the intractable forms of headache; the area of pain is limited. Relief comes from cure of the local uterine condition from which the reflex comes. I have seen these reflex headaches so intense as to necessitate full hypodermic exhibition of morphine, required to make the pain endurable, and I have repeatedly been able to trace the onset of the headache to fatigue, due to unusual exertion of some kind on the eve of the beginning of the flow. A headache, characterized by fulness, sense of tension, feeling of weight on vault of cranium, and a condition of unusual nervous irritation, is common during the climacteric. The cause of this headache may be, and often is, a mixed condition; not only is it due to an attempt of nature to restore the equilibrium of the vascular and nervous systems, but often as well of gouty conditions, when the periodic discharge of blood from the uterus stops or is irregular, one of the avenues of elimination of uric acid and other effete gouty products from the system is cut off, and the general system suffers from the retention in the blood of the resulting toxins. Abundant exercise, a careful dietary, and well-ordered hygiene, are the indications for relief. At middle life, when every energy is bent on business, or when the trials and worries of domestic life beset, there comes a condition of depression, the individual is "below par" without appreciation of the fact. Any nervous strain may develop most acute headache, intractible and chronic in its course. This headache of neurasthenia is similar to the clavus hystericus in a sense; it is located immediately on the vault of the cranium, usually most acute at the time of onset, and for a longer or shorter time continuous and persistent, in spite of drug administration, which at best only palliates. Its onset is often sudden, due to some unusual strain on the nervous system. I recall one case of an active business man, with large interests, and leading a most strenuous life, who developed an agonizing headache as the immediate sequence of coitus, necessitating full hypodermics of morphine and atropine to make the suffering endurable, lasting for days, and causing such mental depression that suicide suggested its only relief. Cure only came when he was made to abandon his business for a time and go to Europe; even then after his return the pain was intermittent, though not severe, and gradually disappeared under continued relaxation from business cares. The headache of central pathologic conditions of the brain, traceable to embolism, softening, tumor, abscess, gummata, is of more serious import

than any coming from reflex causes. It suggests usually lesions incurable in their nature and indicated by other grave symptoms, mental hebetude is prominent in these cases, there may develop conditions of aphasia, perverted sensations in the trunk or limbs, alteration or aberration of one or more of the special senses, ultimately developing some form of paresis. The pain of organic disease may be most acute or it may be dull; there may be exacerbations, and remissions, but its marked symptom is its persistency. We do not know in what tissue of the cranium the pain is located. In meningitis the pain is more acute, sensory nerve fibers have been tracel to the pia mater. The location of the pain may be over the lesion producing it, or it may be remote, as in frontal headache, when the lesion is located in the cerebellum. Morbid sensations, such as formication, pressure, weight, are seldom present when the headache is due to organic lesion. Commonly associated with the headache of organic lesion are vomiting and optic neuritis as specially important.

Headache from various blood conditions is very common. The outcry of the nervous system for more nutrition in cases of anemia, pain in the head, persistent but not intense, extending all over the cranium, and disappearing finally when the condition of the blood is improved.

The specific headache of syphilis is intense, boring in character, and nocturnal in period of occurrence; the history of syphilis aids materially the diagnosis. It may be due to bone caries, or the development of gummata; in the former the boring character of the pain points to the bone involvement; in the latter, and they have sufficiently matured, we have evidence of irregular paresis. Some persons have drug idiosyncrasies, and certain drugs always produce much discomfort from this symptom. In some cases pushing the drug, tolerance becomes established, but in others we are forced to withdraw it. Iron is a notable example of this condition. This is too vast a subject to be covered in the compass of such a paper as this, but I have accomplished the purpose of its creation if it does two things: First, to impress on my hearers the necessity of careful discriminating diagnosis before prescribing for this very common symptom, and secondly, of my warning as to the empirical use of unknown headache remedies by both the profession and the laity be heeded and acted on.

Value of Auscultatory Percussion.—W. WOLFF (*Wien. klin-therap. Woch.*, Sept. 17, 1905) has compared the results obtained with auscultatory percussion with those of ordinary percussion, and finds that the method is at best very inaccurate. In the majority of cases, however, the left border of the heart could be determined, and the method may therefore be of real value in emphysema and in right-sided exudative pleurisy. For routine examinations, however, it should be condemned.

STUDIES IN AGGLUTINATION IN TUBERCULOSIS.[1][2]

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THE present studies in agglutination were instituted for the purpose of determining whether the reaction was of any prognostic significance in tuberculosis, and also to determine whether the resistance of the individual was increased by the hygienic and dietetic means now employed.

It is not necessary at the present time to discuss the various hypotheses concerning the phenomenon of agglutination. It is pretty generally accepted that whereas the phenomenon is not always present in the blood of immunized animals, when it is present it is an indication that the blood of such an animal has a detrimental effect on the growth and vitality of the specific micro-organism, and thus is in some way allied with the process of immunization. It is also assumed that the higher the agglutinating power the greater is the degree of immunization.

From a limited experience with the reaction as a diagnostic agent we do not believe that it is available, as we obtained it in healthy individuals.

The cases we have studied may be divided into three groups: (1) Those in which Maragliano's serum was administered; (2) those with advanced disease, most of them in the terminal stages; and (3) those under treatment at the White Haven Sanatorium from four months to one year. This group consists of incipient cases with two exceptions, one being moderately advanced, the other far advanced.

The five cases in which Maragliano's serum was administered were all suffering from advanced disease and had ceased to improve under the usual dietetic and hygienic measures.

While admitting that they were cases unsuitable for the serum they were selected for the purpose of seeing what results could be obtained by its use. Three of these patients were confined to their beds; two were ambulant cases. In the two ambulant cases the test was made after the first few injections and again repeated after several months had elapsed. In one it remained unchanged; in the other it increased from from 1-10 up to 1-20.

The three bed cases, all of them with extensive disease, were tested after a number of injections of serum had been made. Two agglutinated 1-30, although the diazo reaction was present; the other agglutinated 1-50.

In fifty-nine cases with advanced disease, from the wards of the Phipps Institute, the following results were obtained:

30 agglutinated	1-10
18 agglutinated	1-15
1 agglutinated	1-25
1 agglutinated	1-30

1 From the Laboratory of the Henry Phipps Institute.
2 Read at the meeting of the National Association for the Study and Prevention of Tuberculosis, Washington, D. C., May 19, 1905.

In striking contrast to these are the cases from the White Haven Sanatorium. Of nineteen cases in which the test was made the following results were obtained:

1 agglutinated	1-10
1 agglutinated	1-15
6 agglutinated	1-20
9 agglutinated	1-25
1 agglutinated	1-30

Forty-eight of fifty-nine advanced cases did not agglutinate above 1-15, while sixteen of nineteen cases at the sanatorium, under treatment from four months to one year, agglutinated at 1-20 or higher.

It is, furthermore, of interest to note that the one incipient case which agglutinated at 1-10 only has severe constitutional manifestations with slight pulmonary involvement. A favorable outcome in this case is doubtful, irrespective of the agglutination test.

The diazo reaction was tested for in forty-six of the fifty-nine advanced cases; in thirteen it was present, in thirty-three absent. The diazo reaction was never present when the agglutination was above 1-15; on the other hand, it was absent in twenty-six instances when the agglutination was 1-15 or lower. In eight of the fifty-nine advanced cases the patients have died since these observations were made; only one of the eight agglutinated up to 1-20.

The technic employed was as follows: From 5 c.c. to 10 c.c. of blood was drawn from a vein at the bend of the elbow. The blood was allowed to stand for twenty-four hours, when the serum was drawn off and dilutions made with a homogeneous culture of tubercle bacillus in proportions of 1-5 up to 1-100. The homogeneous culture was grown from twelve to fourteen days in 5 per cent. glycerin-bouillon, then formalin was added in the proportion of 1-1,000. The tubes containing the culture and serum were observed every two or three hours, but the final reading was made at the end of twenty-four hours. A positive result consisted in a clearing of the supernatant fluid, or the agglutination of small whitish clumps, usually at the bottom, but occasionally along the sides of the tube.

From this study we believe that the following conclusions may be drawn:

1. That the agglutination test is not available for diagnostic purposes.

2. The more advanced the disease the lower is the agglutinating power.

3. A low agglutination is of unfavorable prognostic significance.

4. That cases under favorable conditions, as at a sanatorium, have the agglutinating power distinctly increased.

Tuberculosis Exhibit.—The Tuberculosis Exhibit is now open at the American Museum of Natural History, and every medical man of the community should urge his clientele to visit it, not once, but often.

THE SUBSTITUTION OF DRUGS IN THE DISPENSING OF THE PHYSICIAN'S PRESCRIPTION.[1]

BY WILLIAM J. CRUIKSHANK, M.D.,
OF BROOKLYN, N. Y.

(Continued from Page 1030.)

The following are brief extracts from some of the literature which has been contributed regarding the application of heroin as a therapeutic agent, and are quoted for the purpose of showing the advantages obtained in its clinical application over morphine and its salts.

Prof. John North, Toledo, O. (*American Medical Compend*, June, 1899): "I have given it (heroin) to both young and old, and have not had an unpleasant symptom arise. It does not produce the disagreeable nausea and vomiting effect that morphine does."

Prof. Max Einhorn, of New York (*Philadelphia Medical Journal*, Oct. 28, 1899): "Except slight dizziness and occasional dryness in the throat, which I found but rarely, I have never seen any unpleasant symptoms even from a prolonged use of heroin."

Dr. Charles Herwisch, Philadelphia, Pa. (*Therapeutic Gazette*, Nov. 15, 1899): "No headache or disorders of the stomach resulted from the use of heroin, as is often the case with morphine."

Dr. B. D. Gillies, Montreal, Canada (*Montreal Medical Journal*, June, 1901): "On the digestive system in medicinal doses after repeated administration, heroin causes dryness of the pharynx and slight irritation of the fauces. There is no disturbance of the stomach, the appetite remaining unimpaired."

Dr. S. A. Johnson, Nevada, Mo. (*Kansas City Medical Record*, May, 1901): "Heroin acts in a much smaller dose than morphine, is free from any depressing tendency, and is much less liable to produce constipation or other disturbances of the gastro-intestinal tract."

Drs. J. Pawinski and Z. Adelt (*Die Heilkunde*, January, 1901): "We failed to note any unfavorable influence upon the digestive tract. Heroin does not diminish the appetite nor impair the digestion, and does not produce vomiting or constipation."

Dr. E. Y. Johnson, Louisville, Ky. (*American Practitioner and News*, December, 1901): "It (heroin) has all or even more of the pain-relieving qualities of morphine, but none of its bad effects. Except in rare cases of idiosyncrasy, it does not constipate, does not diminish the urinary secretion, does not cause sick stomach, and last and most important of all, does not cause a habit of using it."

Prof. J. B. McGee, Cleveland, Ohio (*Cleveland Journal of Medicine*, June, 1900): "It is more certain and uniform than codeine, safer and less disagreeable than morphine, and, unlike

[1] Some remarks on the general subject, together with an examination of a legal opinion handed down by the Hon. William J. Gaynor, one of the Justices of the Supreme Court of the State of New York, in the case of Laturen vs. The Bolton Drug Company.

the latter, is said to stimulate rather than depress the respiratory center."

Dr. A. L. Leatherman, Indianapolis, Ind. (*Carolina Medical Journal*, March, 1902): "The disturbances of the stomach are practically nil, and the depressing effects, if present, are slight."

In discussing his experience with heroin in one thousand cases, Dr. I. I. Grinewitsch (*Medical Review of Reviews*, July 25, 1902) states: "Heroin is to be preferred to morphine, as unpleasant by-effects are less frequent and are less marked."

Dr. T. W. Keown, Baltimore, Md. (*Carolina Medical Journal*, March, 1901): "The greatest number of cases in which I have used heroin has been among consumptives, and here I find its analgesic and hypnotic effects combined with the maintenance of digestion (there being no nausea, no vomiting, and no disturbance of digestion generally) by the aid of general tonics to be of the greatest value; it is almost entirely prescribed in St. Agnes' Hospital for all cases of this kind, and is much preferred to morphine and codeine in similar cases for obvious reasons."

Dr. G. W. Wood, Washington, D. C. (*Cincinnati Lancet-Clinic*, Nov. 16, 1901: "In no case have I noticed any digestive disturbances from its administration nor any tendency to the formation of a heroin habit."

Dr. H. W. Syers, Great Northern Central Hospital, England (*Medical Times and Hospital Gazette*, Sept. 13, 1902): "But I am bound to say that, so far as my experience goes, I have not met with a single case of phthisis in which heroin has acted in an undesirable manner. I have not noticed any tendency to loss of appetite and nausea, and none to headache or constipation as resulting from the employment of the drug."

Dr. Samuel A. Gluck, Brooklyn, N. Y. (*Medical Review of Reviews*, Oct. 25, 1901: "By the employment of heroin hydrochloride in place of heroin we obviate any chance of the drug producing nausea or vomiting, which has been observed in a few instances in which gastric disturbances were already present. I find that the drug can be used for long periods without any of the objectionable effects of morphine in all respiratory affections attended with cough or a spasmodic condition."

Prof. Samuel G. Dabney, Louisville, Ky. (*Louisville Monthly Journal of Medicine and Surgery*, September, 1903), in reporting his own case of appendicitis, remarks as follows: "The heroin produced a delightful sense of general well-being, and this was followed by refreshing sleep without subsequent nausea. On two occasions I had previously been given a hypodermic of morphine. It eased the pain from an abscess at the root of my tooth and made me sleep, but the next morning I thought I would 'throw up my immortal soul,' as Mark Twain said he did, after taking all the remedies that were suggested to him for a cold. Heroin had no such bad effects."

Continuing, the learned Justice says: "And there was no evidence whatever in the case that one-tenth of a grain of morphine in a dose taken every four hours could cause morphine poisoning. On the contrary, the uncontradicted evidence is that it could not do so, but that one-fifth of a grain increased to one-fourth of a grain every hour would be usual and entirely safe; whereas the plaintiff's dose was only one-tenth of a grain every four hours, and she took only four doses. When we consider that morphine is not a cumulative poison, but that no effects of a dose of one-tenth of a grain, or even of a much larger dose, would remain in four hours after it was taken, we perceive the entire lack of foundation to the claim put forward for this plaintiff that she was poisoned by morphine.

"On this state of evidence, it did not seem to me that there was any evidence on which the jury could be permitted to find the plaintiff was poisoned by an overdose of morphine, and I therefore dismissed the case. It was not for the jury to guess—the fact had to be proved. I would now grant a new trial and send the case to a jury did I not remain of the same opinion. Moreover, I believe that a court may take judicial notice of the scientific fact that one-tenth of a grain of morphine taken every four hours could not have poisoned the plaintiff."

The evidence in the case showed conclusively that the plaintiff *had* suffered from opium poisoning. The attending physician swore positively that he found her suffering from this condition, at the same time describing to the Court her symptoms.

The "*uncontradicted evidence*" to which the learned Court refers, is that of Mr. Wilson, the manager of the defendant company's store. It was this same Wilson who had dispensed the substituted preparation. His testimony as an expert was admitted over legal exception taken by the plaintiff's counsel, who elicited the fact on his cross-examination that the witness was not qualified in any way to testify as an expert upon the subjects concerning which the learned Court claimed for him the proper competency.

If there could be any doubt on the proposition that the witness was ignorant of therapeutics and toxicology, his testimony, as recorded in the stenographic minutes of the trial, will prove the truth of this assertion. Its admission, as expert opinion, is a satire on medical jurisprudence, and is one of the most remarkable exhibitions of farcical judicial ruling ever witnessed in a court of justice. Any *physician* who would testify that the administration of doses of one-fifth to one-fourth of a grain of morphine acetate every hour to "every adult" or "any adult" is a perfectly safe method of handling this drug, would leave himself open to the ridicule of the entire medical profession, and if he acted on the suggestion contained in such testimony he would be guilty of malpractice.

Every experienced physician recognizes the

fact that there *can* be no specific rule regarding the dose of opium or morphine to be administered in every case. He knows that there are persons who cannot take the smallest quantity without the possibility of serious results following its administration. On the other hand, there are those who can take comparatively large doses with little or no inconvenience. The amount of this drug to be administered to a patient must be decided by the attending physician in every instance at the time of its administration. In deciding this question he must take into consideration the pathological condition with which he is dealing, together with the age, habit, tolerance, and idiosyncratic tendencies of the person to whom the drug is to be given. All of these conditions materially affect each person's susceptibility to the action of drugs.

"Occasionally persons are found who manifest a remarkable natural tolerance of the action of certain poisons that is wholly independent of habituation. The author is acquainted with a physician who, although entirely unaccustomed to its use, is able to take a grain of the sulphate of morphine without the production of the slightest apparent effect. Christison relates a similar but even more remarkable case of a man unaccustomed to the use of opium who took nearly one ounce of laudanum without any effect. Many other illustrations of similar tolerance are on record. No explanation as yet has been offered of this phenomenon."—Peterson and Haines, Vol. II, Page 305.

I have myself administered with beneficial results to a patient suffering from so-called idiopathic, acute general peritonitis, as much as seventy to eighty grains of opium in twenty-four hours. I have also seen one-fourth of a grain of codeine administered for the relief of a trigeminal neuralgia produce grave narcotic symptoms in an otherwise healthy adult. Opium is at all times a dangerous drug. It should never be administered in repeated doses except on the advice of a physician, who is in a position cautiously to watch its effects. The number of cases of acute opium poisoning which are recorded from the administration of small doses is very large. Accumulated medical testimony on this subject may be said to point the finger of grave concern at that part of Mr. Justice Gaynor's opinion which attempts to deal with the question of the safe administration of opium to the plaintiff in this action.

Practically the learned Justice holds: First—That morphine or opium may not act as a cumulative poison. Second—That no effects of one-tenth of a grain of morphine or "even a much larger dose" could be observed after the lapse of four hours from the time of the administration of such a dose. Third—That a court may take judicial notice of the scientific fact that one-tenth of a grain of morphine administered every four hours could not produce opium or morphine poisoning.

Let us now compare briefly the language of the learned Court on these three questions with competent medicolegal authority.

First, as to the cumulative power of opium. On page 479 of the work entitled "Poisons—In Relation to Medical Jurisprudence and Medicine," by Alfred S. Taylor, F.R.S., lecturer on medical jurisprudence and chemistry in Guy's Hospital; author of "Medical Jurisprudence," may be found the following: "In another instance a woman, aged twenty-nine years, suffered from vertigo and numbness of limbs and other symptoms when only twenty drops of the tincture of opium were administered in the form of enema, *i.e.*, about one grain of opium. The same dose had been administered for six nights previously without any serious effects following. *This fact renders it not improbable that the drug possesses an accumulative power.*"

On page 470 of the same work the author writes as follows: "In December, 1843, a gentleman swallowed a quantity of laudanum and was found laboring under the usual symptoms. The greater part of the poison was removed by the stomach pump, and he so far recovered from his insensibility as to be able to enter into conversation with his medical attendant, but a relapse took place and he died the following night. It is not improbable that in these cases death may be occasioned by the *accumulation of the poison* carried by the absorbents into the system, *i.e.*, the morphine may be more rapidly carried into the system than it is eliminated out of it."

The author continues on page 494 as follows: "The frequent repetition of a poisonous medicine administered, if the interval between the doses be not sufficiently long to allow the individual to recover from its effects, will operate as fatally as if the poison was given at once. It also tends to strengthen the view that the *salts of morphine have an accumulative property.*"

On page 484 the author still further discusses this point in the following language: "The quantity of this poison required to destroy life may present itself to a medical jurist as a question under another form, namely, whether a quantity which, if taken at once, would suffice to kill, will prove equally fatal when administered at certain intervals in divided doses. . . . It appears to me certain, when the intervals at which these divided doses are given are so short that the patient has scarcely recovered from the effects of one before another is administered, that the poison may destroy life, when the whole quantity has been taken, although each dose individually might have been harmless. If a sufficient time has elapsed between the doses for the patient to recover entirely from the effects, there may be some doubt whether death would follow, although *it cannot, I think, be denied that opium may possess an accumulative power.*"

The following is an interesting example of the cumulative action of opium. Dr. James P. White (Tran. Am. Gynec. Soc., 1878, III, 299) reports

the case of a woman upon whom an abdominal operation for tumor was performed, and who, owing to her statement that opium taken into the stomach always produced very disagreeable symptoms, was given a suppository of opium, grain iii, with extract of belladonna, grain one-fourth, and sulphate of quinine, grain iiss, every four hours to allay the postoperative irritability of the stomach, all food and medicines having been rejected. On the third day she suddenly became comatose and presented all the symptoms of severe opium poisoning, and only the most heroic measures saved her life. This case shows a sudden and overwhelming action of the drug. For two days the patient had used the suppositories which suddenly, in the afternoon of the third day, induced such a profound narcotic effect.

Instances similar to the above are not of very infrequent occurrence, and seem to require no further comment from me. They speak for themselves and decide the question of the cumulative action of opium without further controversy.

Now, as to the accuracy of the next statement contained in the opinion regarding the time which is required for the effects of a dose of one-tenth of a grain of morphine to disappear, here the learned Justice holds that *"no effects would remain in four hours"* after it was administered.

This statement is so utterly foolish that it is almost a waste of time to consider it. Any person who has ever, knowingly, taken a dose of opium or morphine has realized the exact contrary to the learned Court's statement to be true. If I might be permitted to do so, I would like to suggest to His Honor the reading of De Quincy's "Confessions of an English Opium Eater." in which the author describes the *period of excitation* following each dose of opium which he administered to himself as lasting from eight to nine hours.

Every experienced physician knows that it is on the morning following the evening of the administration of morphine to his patient that he will find evidences of the toxic effects of the drug. He recognizes these symptoms as soon as he enters the sickroom, the dull conjunctiva, the contracted pupil, the circulatory disturbances which are made manifest in nausea and perhaps vomiting when the patient attempts to raise his head from the pillow, the complaint of headache and dizziness and the apparent lethargy. All of these symptoms are frequently observed from the effects of a single dose of one-eighth of a grain of morphine and they may remain in evidence for a period of time anywhere from twelve to forty-eight hours. Every experienced physician also knows that there are many conditions which modify the time which is required for the symptoms of a given poison to appear, and also to disappear, after the poison has been administered, such, for example, as the condition of the stomach, whether full or empty, diseased or normal, the condition in which the drug is administered, whether in the form of a capsule, liquid, pill or powder, the idiosyncratic tendencies of the patient, etc. All of these conditions must be taken into account when considering the subject of poisoning in any form. Ignorant, sweeping assertions, such as are contained in the opinion of the learned Court on this point, are not only worthless but harmful. They are nothing if not misleading.

On page 307, Vol. II, of Peterson and Haines' "Text-book on Legal Medicine and Toxicology," the following reference to this subject may be found: "Diseases as a rule do not appear suddenly in persons of health, but usually are preceded by a number of hours, days or even weeks of general or local indisposition. Poisons, on the other hand, generally produce their symptoms suddenly, striking down persons in health with great severity and with but a short period of antecedent distress. *It should be remembered, however, that there are important exceptions to this rule on both sides.* While nearly all poisons show their effects in the great majority of cases within an hour or two at most after their administration, and some, like the corrosives, hydrocyanic acid and strychnine, usually either almost immediately or within a few minutes, still many cases are recorded in which the full symptoms of the poison have been delayed a number of hours. Hartshorne relates a remarkable instance of poisoning from a dram of arsenic trioxide in which the symptoms did not appear for sixteen hours. Christison records a case in which upward of two ounces of tincture of opium were taken and no well-defined symptoms showed themselves till the eighteenth hour; and a case is reported in which a woman ate a considerable quantity of aconite root, no characteristic effects developing until ten hours afterward. The form in which the poison is administered, and the condition of the stomach as to whether containing food or not, are important factors, as we have already seen, in determining the rapidity of absorption, and consequently the time of the production of symptoms."

The following cases, reported by Taylor, on page 469, in his work on Poisons, will serve to illustrate this point:

"A man, aged forty years, swallowed ten drams of tincture of opium by mistake for tincture of rhubarb. When seen by Dr. Sewel *five hours* afterward he was in bed, awake and quite conscious. The pupils were contracted to the size of pin points and immovable. The temporal arteries pulsated with great violence. The speech was uttered with difficulty, the skin dry, pulse 100 and jerking. By active treatment the man recovered in fifteen hours. A man swallowed an ounce and a half of laudanum and in an hour one-half as much more, and lay down in bed; some excitement followed, with numbness of the extremities. He continued sensible and was so lively for seven hours after the first dose that a

medical man did not believe his statement. It was not until the eighteenth hour that stupor set in and in two hours more the symptoms of poisoning by opium were of an exaggerated kind. The ordinary duration of fatal poisoning by opium, according to the observations of Christison, is from seven to twelve hours."—Wormly, on Poisons, page 469.

This author cites the case of a stout, muscular woman who, under disguise, had served several months as a soldier in the War of the Rebellion. She took for the purpose of self-destruction, sixty grains of opium. "In about two hours afterward, being disappointed in the effects of the drug, she swallowed one-half ounce of laudanum and about half an hour later took as much more. When seen about three hours and a half after taking the first dose, by Dr. J. R. Thompson, to whom I am indebted for the particulars of the case, she was perfectly rational and told all she had done. Emetics of sulphate of zinc and ipecac were then administered, but they did not operate until about half an hour later, when they brought away a large mass of matter having a strong opiate odor. From several circumstances connected with this case there is no doubt that the patient took the quantities of opium and laudanum stated, which are equal to nearly one hundred grains of the crude drug."—Wormly, page 472.

"It has been frequently observed," says Taylor, on page 469, "in cases of poisoning by this drug, that the individual has recovered from the first symptoms and had then had a relapse and died. There is some medicolegal interest connected with this state, which has been called secondary asphyxia from opium."

In referring to a case of opium poisoing from the administration of twenty drops of laudanum given in an enema, Taylor, on page 479, says: "She continued in a state of delirium for twenty hours and the numbness of the limbs only ceased after forty-eight hours." . . .

"Dr. Babington has communicated to me the case of a lady who had taken five grains of Dover powder, that is, about one-half grain of opium (about one-twentieth of a grain of morphine) and who suffered from stupor and dizziness for three days."

"These serious effects," says this author, "produced by small doses on adults, must, however, be considered as exceptions to the rule. They appear to be due to the idiosyncrasy or to a peculiar susceptibility of the poisonous effects of opium in certain constitutions. It must not be forgotten, however, that they lead to one important inference in legal medicine, namely, that an adult may be killed by a dose of opium which many, relying upon limited experience, would pronounce to be innocuous. We have commonly no means of detecting or recognizing the existence of this idiosyncrasy in indivdiuals prior to the fatal event."

"A middle-aged gentleman, lying dangerously ill from an attack of dysentery, took by mistake about seven drams of Battley's solution. Within five minutes salt and water with mustard were administered, and twenty-four grains of sulphate of zinc. Vomiting ensued; the emetic was repeated and with the same effect; the fluid evacuated at the second vomiting having the usual smell of opium. One-half dram of ipecacuanha was afterward given to complete the emptying of the stomach. Notwithstanding this repeated vomiting, symptoms of narcotism presented themselves speedily, with contraction of the pupils and very great drowsiness, rendering it necessary to remove the patient from bed, in his very debilitated state, and keep him constantly moving until about 9 P.M. (seventeen hours), when vomiting came on spontaneously. He was then put to bed and allowed to sleep. The original disease afterward resumed its course (complicated by an attack of gastritis), and at length terminated favorably. But the patient had no recollection of what had occurred for twenty-four hours after the administration of the emetics, and it appeared to his medical attendants that an excited state of mind remained for some days afterward."—Taylor, pp. 498, 499.

"Many persons manifest an unusual and in most cases inexplicable sensitiveness to the action of certain poisons, and this fact has not infrequently been the cause of serious disturbance and even of death from the remedial administration of these substances in the practice of medicine. Marked individual intolerance of antipyrin, of cocaine, or of even such comparatively harmless substances as quinine and, in fact, nearly every known drug and of many articles of food is almost daily observed by busy medical practitioners.

In all cases of poisoning the possibility of the existence of this unusual sensitiveness should be borne in mind. Idiosyncrasy is presumably the cause also of certain rare cases in which poisons produce very unsual symptoms, or even entirely opposite effects from those generally observed. Shearman reports a case in which a grain and a half of morphine was followed, not by coma, but by convulsions resembling those caused by strychnine, and Phillips records an instance in which atropine caused contraction of the pupils instead of dilatation."—Peterson and Haines, Vol. II, page 304.

Crothers, in his work on morphinism and its medicolegal relations, cites the case of "an active business man who, for insomnia of temporary duration, was given an eighth of a grain of morphine. The narcotism lasted one day, most of the time profound, and was followed by great muscular and mental depression. Later, when a small dose of opium was given, the effects were equally marked and long continued. In another case a man suffering from colic, was given a quarter of a grain of morphine. He slept two days, most of the time in a condition of stupor, from which it was difficult to arouse him. These

cases are not common," says the author, "but are likely to occur unexpectedly at any time."

Continuing, he says: "Some children show this extraordinary sensitiveness to opium and its preparations. . . . Profound narcotism follows its use, *lasting a long time* and ending in general derangement of the brain and nervous system."

The plaintiff in this action had a very decided sensitiveness to the action of opium, and this fact was well known by her family physician when he prescribed for her condition one-twenty-fourth of a grain of heroin to be given every four hours. The distressing bronchitis from which she was suffering necessitated the administration of some sedative to the bronchial mucous membrane. As it has been demonstrated conclusively by competent authority that heroin in one-twenty-fourth of a grain doses administered every four hours could not possibly have produced the symptoms from which this plaintiff suffered, there is but one conclusion to be arrived at, namely, that the ill effects which followed the administration of the substituted preparation must be attributed to the morphine which it contained. Moreover, there does not seem to be any need for further discussion of the question as to whether the effects of "one-tenth of a grain of morphine, or even a much larger dose, would remain in four hours after it was taken."

We pass on now to the next sentence contained in the opinion, which is the following: "Moreover, I believe that a court may take judicial notice of the scientific fact that one-tenth of a grain of morphine taken every four hours could not poison the plaintiff."

This is the most mischievous statement contained in the opinion. When the Supreme Court of this State, through Mr. Justice Gaynor, decided that a person cannot be poisoned by one-tenth grain doses of morphine, administered every four hours, it established a dangerous legal precedent which is contrary to all scientific medical knowledge on the subject.

Before citing authorities in support of this statement, I beg permission to call to the attention of my readers the following facts: This plaintiff received with each dose of medicine administered to her one-twelfth of a grain of heroin, together with one-sixteenth of a grain of morphine acetate, but all evidence which might have any bearing upon the administration of the additional one-twelfth of a grain of heroin was excluded at the trial. Consequently the testimony of the pharmacist to the effect that he dispensed for the plaintiff only one-twenty-fourth of a grain of heroin was admitted in evidence without contradiction. The learned Court having been guided by this evidence, has therefore decided that four doses of morphine, each dose consisting of one-tenth of a grain of that drug, were given her, and it is upon this that the learned Trial Justice bases his opinion that the plaintiff could not have been poisoned. Adding the four doses together, the plaintiff is said to have received a total of twenty-five milligrams, which is equal to two-fifths of a grain, or one-tenth of a grain less than one-half of a grain of morphine. This amount, according to the evidence, was given in divided doses at intervals of four hours.

I have shown by competent authority that divided doses of this drug may have a cumulative action, in some instances and under some circumstances, producing practically the same poisonous effects as if the whole amount were administered at one dose. This plaintiff has a drug idiosyncrasy. She cannot tolerate morphine at all. It was for this reason that I prescribed small doses of heroin for the purpose of relieving her cough, instead of morphine. Moreover, she was much weakened as the result of her metrorrhagia.

Now, let us see what our medicolegal authorities say regarding the possibility of poisoning such a patient with morphine given in doses such as the defendant concedes were administered to this plaintiff:

"The individuality noted in the assimilation and ingestion of drugs is functional as well as anatomic. Numerous cases have been seen by all physicians. The severe toxic symptoms from a whiff of cocaine spray, *the acute distress from the tenth of a grain of morphine*, the gastric crises and profuse urticarial eruptions following a single dose of quinine—all are proof of it. The 'personal equation' is one of the most important factors in therapeutics, reminding us of the old rule, 'Treat the patient, not the disease.' The idiosyncrasy may be either temporary or permanent, and there are many conditions that influence it. The time and place of administration; the degree of pathologic lesion in the subject; the difference in the physiologic capability of individual organs of similar nature in the same body; the degree of human vitality influencing absorption and resistance; the peculiar epochs of life; the element of habituation; and the grade and strength of the drug influencing its virtue—all have an important bearing on the untoward action and tolerance of poisons."—"Anomalies and Curiosities of Medicine," Gould and Pyle, page 497.

"Billroth mentions the case of a lady in whom appeared a feeling of anxiety, nausea and vomiting after the ingestion of a small fraction of a grain of opium; she would rather endure her intense pain than suffer the untoward action of the drug. According to Lewin, Brochin reported a case in which the idiosyncrasy to morphine was so great that one-twenty-fifth of a grain of the drug administered hypodermically caused irregularity of respiration, suspension of the heartbeat, and profound narcosis."—Gould and Pyle, page 505.

According to Wood's Therapeutics, (1890, page 168), one-sixth of a grain of morphine produced a fatal result in an adult. Wood also quotes Dr. A. Culkins (*Quarterly Journal Psycholog. Med.*, 1868, II, 739) as authority for

the statement that four grains of crude opium (four-tenths of a grain of morphine) has produced fatal results in more than one case. Wood further says (page 168, 1890): "In a babe a day old one minim of laudanum (E. Smith, *Lancet*, 1854) and in one nine months, a few drops of paregoric have proved fatal."

Hugo Mandl (*Wien. med. Wochenschr.*, 1899, XLIX, 1893) reports the case of a man forty-five years old, suffering from tabes dorsalis, advanced to the paralytic stage, who was given for the first time a hypodermic injection of morphine hydrochlorate, one-sixth of a grain: "In ten minutes he was suddenly seized with convulsions, lasting one minute, followed by extreme stupor, cyanosis, Cheyne-Stokes respiration, etc., and was in a critical condition for four hours, when consciousness returned."

The writer also cites the case of a man who complained of pain over the cardiac region, and who received a hypodermic injection of one-quarter of a grain of morphine. In three to four minutes the patient collapsed, the pupils dilated, and death followed from paralysis of the heart. "A quantity of morphine just above the limit of a medicinal dose in any case, is really on the border of *a poisonous quantity*, in that case. Given a barely poisonous quantity, that is, the smallest one 'tending to produce death'—it will depend on a great number of factors just how much more would be enough to carry out the *tendency* to its fatal conclusion. . . . Cases are well known of an unusual susceptibility to the action of morphine, so that the person having this idiosyncrasy, as it is termed, suffers poisoning effects from doses not above medicinal limits. . . . According to Christison, seven drops of laudanum always narcotized a certain gentleman. Half a grain of opium caused narcotism in a woman seen by Grisolle. The external application of about a grain of morphine to a blistered surface at the back of the neck—patient, an aged lady. Symptoms appeared after two hours, consisting of convulsive agitations, cold sweats, extreme prostration, and threatened suffocation, slow recovery under active treatment."—Peterson and Haines, Vol. II, 489, 490, 492, 493.

On page 995 of the National Dispensatory may be found the following words: "Not a few examples are recorded of death by syncope immediately after the administration of morphine hypodermically, and many also in which death seemed imminent. In one case, among others, a case of lumbago, this effect resulted from the hypodermic injection of one-sixth of a grain at a spot midway between the spine and the crest of the ilium. In about ten minutes collapse with syncope occurred, and the patient was with difficulty saved."—*Boston Medical and Surgical Journal*, Oct., 1879, page 619.

This case is the more interesting because it is cited from the National Dispensatory. This work is the authority quoted by Mr. Wilson, the pharmacist who dispensed the substituted mixture, for his sworn statement that "from one-fifth to a quarter of a grain of morphine every hour would be a perfectly safe dose to give to every adult," and also that it made no difference as to the physical condition of the person to whom the morphine was given.

"An infant may be narcotized by the milk of a nurse who has taken opium. . . . Occasionally instances of idiosyncrasy occur in which the susceptibility to the narcotic influence of opium is greatly augmented. . . . The external application of opium, especially to an abraided surface, may prove highly dangerous an even fatal, especially in the case of infants. Christison relates an instance where a laudanum poultice applied over the abdomen of an infant to relieve pain produced fatal narcotism in some hours, and where at the autopsy a strong odor of opium was exhaled from the body, showing how completely the poison had been absorbed. . . . One grain of morphine has, on several occasions, produced death. Dr. Reese saw a case in which three-quarters of a grain administered hypodermically proved fatal to a man within twenty-four hours. Still *smaller doses thus administered have* produced fatal results."—Reese, "Medical Jurisprudence and Toxicology," page 549.

"In a case quoted by Dr. A. Stille (Mat. Med. I, 676), a lady affected with cancer of the uterus was dangerously narcotized by less than one-sixteenth of a grain of hydrochloride of morphine applied to the denuded skin of the epigastrium. Even the one-thirty-second of a grain of the alkaloid applied in this manner has produced very serious symptoms. . . . So, also, a case is reported in which one-third of a grain produced profound stupor and another (*Boston Medical and Surgical Journal*, October, 1879, 619) in which about one-eighth of a grain of the sulphate caused most singular and alarming symptoms. . . . Dr. Toogood relates an instance in which twelve drops of 'Battley's solution,' which is usually regarded as having about three times the strength of ordinary laudanum—taken by a feeble woman, aged fifty-five years, produced the usual symptoms of opium poisoning and death on the following day."—*Provincial Medical and Surgical Journal*, November, 1841, 129.—Wormly, Micro-Chemistry of Poisons," page 479.

The amount of morphine in the "sedative" mixture referred to in the above case could not have been at the most more than one-sixth of a grain. Taylor, on page 479, reports the case of "a young lady, aged twenty-nine years, who suffered from vertigo, numbness of the limbs, and other serious symptoms when only twenty drops of laudanum were given her in the form of an enema." (That is, about one grain of opium or one-sixth of a grain of morphine.) In connection with this case, Taylor refers to the case of "a lady who suffered from stupor and drowsiness for three days as the result of the administration to her of five grains of Dover's powder."

(That is, about one-half of a grain of opium or one-twelfth of a grain of morphine.)

"There are some facts connected with the fatal dose of this poison in adults which deserve consideration. The effects of the drug vary with age, idiosyncrasy, habit, state of health or disease and mode of combination. The aged and the young are much more strongly affected by opium than adults, and very small doses will suffice to kill individuals at the extremes of life. With respect to idiosyncrasy, its influence over the properties of this drug might be illustrated by numerous cases. Some persons cannot bear the smallest doses of opium without suffering from the most intense headache and other painful symptoms. . . . Two instances have just been mentioned where half a grain (one-twelfth of a grain of morphine) and one grain (one-sixth of a grain of morphine), respectively, occasioned alarming symptoms in an adult. The following is another instance of more recent occurrence in a case reported by Dr. Steinthal (Casper's *Wochenschrift*, May, 1854, page 249). A man who had been suffering from piles was ordered a starch clyster containing only one grain of pure opium (one-sixth of a grain of morphine). In about half an hour after its administration the patient was found in a partial state of narcotism. There was pain in the head, which felt hot, the eyes were red and suffused, glassy looking and half open; the face flushed; tongue dry; and there was a painful tenderness both in the head and face on the slightest motion. The man was talkative and incoherent, still having sufficient sense to put out his tongue when desired. There was complete loss of power in the upper and lower extremities and the man was in a half stupefied condition. A strong cup of coffee (half an ounce to a cup) roused him for a time, but in a quarter of an hour symptoms of narcotism again appeared and continued for two hours. The man fell asleep and awoke somewhat refreshed, but he had still lost all power of exerting himself; he slowly recovered from the effects of the dose. . . . From these facts it is obvious that a very small dose, *i.e.*, from two to three grains (of opium), would in such cases suffice to kill an adult; and death might possibly follow from the effects of one grain." (One grain being equal to one-sixth of a grain of morphine.)—Taylor, page 481.

With regard to the danger of poisoning infants with opium, it is so well recognized by medical men as to cause only passing comment here. But in view of the fact that the pharmacist who dispensed the prescription for the plaintiff had no idea concerning her age, I am desirous of citing one or two cases on this branch of the subject.

Taylor, page 484, reports Beck's case, in which a child was poisoned with fifteen drops of paregoric (one-sixteenth of a grain of opium, or one-ninety-sixth of a grain of morphine). The author further reports, among others, the following cases of child poisoning by opium: (1) Child four months old nearly killed by the administration of one grain of Dover's powder (one-tenth of a grain of opium or one-sixtieth of a grain of morphine). (2) Four grains of Dover's powders killed a child four and a half years of age in seven hours. (3) Nine drops of laudanum killed an infant five days old in eighteen hours. (4) A woman boiled two poppy heads in a quarter of a pint of milk and gave only two small teaspoonfuls of this decoction to her child. In an hour the child fell into a deep, lethargic sleep; the respiration became stertorous and in ten hours it died. (5) An infant child was given a teaspoonful of Godfrey's cordial ($^1/_{32}$ of a grain of opium, $^1/_{192}$ of a grain of morphine) and it resulted fatally.

Taylor (page 493) reports the case of a lady whose death was caused by the administration of one-half grain of the acetate of morphine.

Dr. Christison is referred to by Taylor as reporting the fact that leeches applied to a child poisoned by an injection of poppyheads dropped off dead.

Taylor (pages 499) reports the following interesting case: "A young woman, laboring under scirrhus of the uterus, and suffering from vomiting and pain in the stomach, was ordered to apply to the epigastrium, from which the skin had been previously removed by a blister, the $^1/_{28}$ part of a grain of the muriate of morphine. The same dose was repeated by the endermic process the following morning. Some time afterward the woman fell into a state of complete narcotism. She suffered from pain in the head, stupor, dizziness and incoherency, a hot and dry skin, and a strong and frequent pulse. Among the symptoms was one that was somewhat remarkable, namely, that she saw only the half of surrounding objects. The cerebral congestion was followed by convulsions. Venesection was performed, but this only produced a stronger attack followed by another. . . . The symptoms gradually abated, but it was three weeks before vision and speech were perfectly restored. . . . Four-tenths of a grain of the acetate of morphine, applied to a blistered surface, have been known to cause dimness of vision and delirium." "In a case quoted by Dr. Beck, twelve drops of laudanum (half a grain of opium, one-twelfth of a grain of morphine), used as an injection to allay the pain consequent on cauterization of the rectum, produced all the symptoms of narcotic poisoning and death in seventeen hours."—Wormly (page 469).

What is to be said, in the face of such authoritative statements as have been cited to the contrary, of a decision emanating from a court of the highest original jurisdiction, which holds that "a court may take judicial notice of the fact that one-tenth of a grain of morphine, taken every four hours, could not poison the plaintiff"? This question is one which may well be answered by the allied professions of law and medicine. Let us proceed with our examination of the opinion, which continues in the following language: "It

is very evident that the names on the two bottles are, taken together, very misleading. The name 'Elixir Pinus Compositus with Heroin' is obviously wrong, for the contents of the bottle are, in fact, 'Elixir Pinus Compositus,' not merely 'with' heroin, but also 'without' morphine acetate."

In approaching an interpretation of the above paragraph one must confess to considerable embarrassment. It so far overshadows the Bunsbyism of the renowned Captain that the "application on it" would tax to its utmost the penetration of the esteemed and worthy expounder, "Edard Cuttle-Mariner." We find the learned opinion holding that the contents of a bottle are not only with "but without" something, that is, the bottle contains, and yet it does not contain. A bottle containing "Elixir Pinus Compositus with Heroin" is held, by the learned Court, to be improperly and wrongly labeled, because the label tells only the contents of the bottle, and a label is held to be misleading because it does not specify *what the bottle does not contain.* Why a bottle containing "Elixir Pinus Compositus with Heroin" should be labeled *without morphine* or without anything is a pharmaceutical mystery, the solution of which must be left to the learned trial justice. Why not label it without codeine, or without quinine, or without every other drug in the pharmacopœia.

The prescription as written for this plaintiff had nothing to do with morphine any more than it had to do with strychnine. Neither the word morphine, nor the drug itself would have played any part in the illness of this plaintiff, had it not been for the negligent and willful intrusion of the defendant drug company through its manager, Mr. Wilson. *"The names on the two bottles taken together"* are no more misleading to a competent observer than are the names which may be found on any other two bottles now standing on the shelf of the pharmacist. Ignorance is always misled. No sane person attempts to interpret the language of the chemist or pharmacist unless he understands its full meaning. Many drug stores contain two certain shelf bottles. One of these bottles is labeled "Tinct. Ipecac Co." One contains "liquid Dover's powder," a preparation of opium, and the other contains plain tincture of ipecac, which contains no opium at all. Is the bottle label which reads "Tinct. Ipecac" improperly worded because the label does not also specify that the bottle does not contain opium? Such a proposition, in the light of pharmaceutical training, *must* be absurd because it is the business of the druggist, under the law, to know that the letters "Co" on the label, when added to the words "Tinct. Ipecac," indicate that the preparation, besides containing ipecac, also contains a definite quantity of opium to each minim, and further that through the addition of these two letters the label indicates that the opium has become the important ingredient contained in the bottle. The similarity in names must not mislead the pharmacist. The law will not permit it to do so. The courts have held that the druggist, in the vending and dispensing of his drugs, must properly identify them and, also, that he cannot neglect such proper identification without liability. An examination of Merrell's list of preparations will disclose the fact that there is nothing misleading about the labeling of them, provided always that the person reading the label is both competent and honest. It is not expected that the public can understand them. To be familiar with them is the business of the physician and the pharmacist. One might venture the opinion that it is expecting almost too much of the learned trial justice to require of him a strictly correct and scientific interpretation of such things. There are some branches of science, besides toxicology, which may possibly have escaped his memory. There are four separate and distinct Elixirs of White Pine listed in Merrell's catalogue, as follows:

Elixir Pinus Comp.
Elixir Pinus Comp. Plain
Elixir Pinus Comp. with Heroin
Elixir Pinus Comp. with Codeine.

The labels on the bottles containing these different preparations cannot mislead any but the careless or incompetent pharmacist, because the bottles containing heroin and codeine announce the fact in large red letters on their labels, and a reference to the manufacturer's list will also identify them beyond question. The following abstract from Merrells' catalogue will serve to illustrate this point: "Elixir Pinus Compositus *Plain* contains no morphine, codeine, or other derivative of opium. This elixir is supplied either *plain, with morphine, codeine, or heroin. Elixir Pinus Compositus with morphine will be supplied in the absence of specification.*" Nothing can be plainer than this. All the Bunsbyism contained in this learned legal opinion cannot alter the facts as set forth on the labels of the manufacturer and, also, as contained in his catalogue. And just here it seems pertinent to ask the question of the pharmacist, Why did he not add the heroin to the *"plain Elixir,"* instead of adding it to the Elixir which already contained morphine? If a druggist is bent on committing the crime of substitution, why not do it so as to limit as much as possible the chance of poisoning the patient? If Mr. Wilson had added the *proper amount* of heroin to the "plain Elixir," although his act would have been that of substitution, the patient would have suffered little or no harm. The explanation of the fact that he did not do so is contained in the former statement that he never looked at the manufacturer's catalogue until after his act of substitution was discovered, and consequently he was entirely ignorant and negligent of what he was doing when he dispensed the prescription for this plaintiff.

Continuing, the learned justice makes use of the following language: *"For this reason the doctor's prescription was negligent. It should*

have unmistakably distinguished between the two bottles, since the names on their labels did not." When writing this latter part of the opinion, the fact that he had written the first part of it must have slipped the mind of the learned trial justice. If, in his opinion, the words "without morphine" should have been added to the prescription, what then becomes of his theory concerning the great necessity of following the shop label? The bottle label as printed by Merrell does not read "without morphine," and his Honor has already held that the shop label ought strictly to be followed by the physician in writing his prescription. The first part of the opinion distinctly holds that the prescription was not carefully written because the word "Cum" was used in it, instead of the word "with," on the ground that in containing the word "Cum" the prescription "did not even correctly follow the patent medicine bottle it was to be filled from." In the latter part of the opinion we find the learned justice holding just the opposite of this, namely, that the physician in writing his prescription, should have disregarded the shop label and should have added to his prescription the words "*without morphine,*" and that, because the prescription did not disregard the shop label to that extent, it was negligently written. Thus the prescriber is "damned if he does, and damned if he does not." It is almost too absurd for criticism to say that a prescription shall designate what ingredients are to be left out of it, as well as to name those ingredients that the prescriber desires to have put in it. Under the suggestion contained in the opinion, on this point, the prescription which is being discussed should read something like this:

"Elixir Pinus Compositus Cum Heroin
Merrell's ℥ iv.
without morphine
without codeine
without chloral
without paregoric
without chloroform,"

and so on throughout the whole materia medica.

Every physician knows, and every druggist should know, that morphine and heroin are never prescribed together in the same mixture. When heroin is prescribed it is always to the exclusion of morphine. The two drugs are never mixed, unless perhaps through the careless blundering or the willful substitution of the pharmacist.

One of the objects of the physician in prescribing heroin is to get rid of the untoward effects which accompany the administration of morphine. It should not, therefore, be necessary for him, when prescribing heroin in a mixture, to be compelled, through judicial decision, to ask the dispensing pharmacist to be kind enough to leave out morphine, any more than he should be compelled to politely request him to dispense the prescription without arsenic, strychnine or Rochelle salt. It is the business of the druggist to dispense the prescription as it is written, or he must decline to dispense it at all. No pharmaceutical liberty should be tolerated in this matter, unless such liberty is authorized by the prescriber. Any deviation from the letter of this "hard and fast" rule and the physician's prescription, as an order to the druggist, becomes valueless.

The opinion is concluded in the following paragraph from which I have omitted certain phraseology devoted to a personal attack by the learned Justice on myself. My reason for omitting the language referred to is because it is irrelevant to the issue and also because I have already considered it at sufficient length in a previous article.

"My attention is called to the fact that the doctor has published in a medical journal and otherwise the false and invented statement that it was decided in this case that a pharmacist may change a doctor's prescription, or substitute some other medicine than that it calls for, without liability. . . . But lest any drug clerk may be misled by such false statement to the danger of others, it seems proper that I say that not only was no such thing said or decided, but it was not presented or even mooted. Where would counsel be found to present and argue such an absurd proposition?"

Notwithstanding the above statement, a reference to the following words of the learned Justice, as set forth in another part of the opinion, will, I think, convince the reader that the contrary is true, and that the learned Justice has really held that to tamper with the physician's prescription is not negligent.

"The pharmacist therefore, in order to fill the requirement of the words "Cum Heroin" in the doctor's prescription, added the said $^1/_{24}$ of a grain of heroin to the dose, and thereby literally filled the prescription which, as we have seen, called for "Elixir Pinus Comp" with the added two words "cum Heroin" (with heroin). There was plainly no negligence in this."

Nothing can be plainer and more positive than this. The prescription called for a specific preparation made by Merrell, and the opinion of the Court holds that the pharmacist may dispense a distinct and separate mixture to which he himself has added heroin. When it is considered that the evidence in the case is conclusive that the four ounces of the preparation, to which the heroin was added, already contained two grains of the acetate of morphine; and also that this amount of that poisonous drug was actually dispensed for the plaintiff, whereas no morphine whatever was prescribed for her, it does not seem that there can be any doubt whatever of the attitude taken by the learned trial Justice on the question of the right of the druggist to substitute. But if the reader is still doubtful regarding the position assumed by his Honor in reference to this matter, the following words, also quoted from the opinion, will serve to make the point clearer: "*The pharmacist properly added $^1/_{24}$ of a grain of heroin for each dose.*"

Thus the door to drug substitution, instead of being closed by the Court, is thrown wide open by it, because, if the Supreme Court of this State holds that the prescription may be tampered with to the extent which is here held by Mr. Justice Gaynor to be proper and without negligence, where will the dishonest and unscrupulous pharmacist draw the line in his tendency toward intrusion on the physician's prerogative? Finally, I believe we may conclude the examination of this opinion with the positive assertion that even if "no such thing was presented or even mooted" as the technical question of the right of the pharmacist to substitute drugs in the preparation of the physician's prescription, the learned trial Justice, in the adjudication of the case at bar, has decided, to a point of great certainty, that the pharmacist has that right.

The question of the learned Court, *"Where would counsel be found to present and argue such an absurd proposition?"* may truthfully be answered that nowhere at the bar could such counsel be found, but the bench has furnished an advocate. It was left to Mr. Justice Gaynor to take the initiative and in the entire field of *"such absurd presentation and argument"* he stands pre-eminent, steadfast and alone.

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MEDICAL PROGRESS.

MEDICINE.

Gastric Ulcer.—First remarking that the symptoms depended on in the past for the diagnosis of gastric ulcer are insufficient, and that there is no single symptom or laboratory test that is reliable, H. D. NILES (*Journal A. M. A.*, Oct. 21) gives his conclusions deduced from his study of the subject and his personal experience with or observation of 75 cases. While in at least 85 per cent. of all cases early characteristic diagnostic signs are lacking, there are still aids, he thinks, that can guide us to an early and correct conclusion in the majority of these obscure cases. First of all, the frequency of ulcers as compared with other stomach lesions should be considered. It is estimated that not less than 5 per cent. of mankind are the victims at some period of their lives of gastric ulcer. Second, the influence of age, trauma and habits should be borne in mind. There are, Niles believes, two periods in which ulcer is most likely to appear—the period of most rapid development and that of beginning degenerative change. Of those patients operated on in adolescence and early maturity few had led very active lives, while the reverse was true of those in or past middle life. A strained or immobile position of the stomach, he thinks, is an important factor, especially in the middle-aged. Third, the field of differential diagnosis can and should be narrowed by excluding other possible constitutional and local causes of the symptoms. Fourth, the most common cause of error may be eliminated if it is remembered that gastritis, indigestion and gastralgia are the most constant results, and hyperacidity the most common cause of gastric ulcer. Thus dyspeptic symptoms may have ulcer as their basis, while hyperacidity, if present, points strongly to the existence or coming of an ulcer, and is certainly one of its most characteristic symptoms. Fifth, whether or not the continuance of the symptoms is influenced by medicinal or dietic measures is of importance. If the symptoms are of long duration or occur and recur without adequate cause, there is probably a real pathologic condition and most probably ulcer. Hyperacidity and chronicity together point strongly to ulcer. Sixth, it may help to remember that the ulcer that occurs in the developing period (between eighteen and twenty-eight years) is nearly always due to hyperacidity alone, and often cicatrizes with proper treatment or even without treatment; while that in the middle age is more likely to start from degenerative changes in the scar of an old ulcer. The first form is due to imperfect adjustment of the secretory functions, and the last to nature's inability to protect scar tissue from effects of the normal gastric juice. Seventh, if, after a careful study of the case, taking into account all the above considerations, there is still doubt, the advisability of the crucial test, viz., an exploratory incision, should be considered. When there is still doubt and the weight of evidence is in favor of ulcer, Niles thinks that this measure should be resorted to.

Action of the Toxic Agent of Lobar Pneumonia Therapeutics.—In a résumé on this subject W. V. BREM, Jr. (*Bull. of the Johns Hopkins Hosp.*, October, 1905) states that the action of the toxic agent of lobar pneumonia is as follows: (1) Phenomena of the mild action bear the features of stimulation of the central nervous system and cardiac muscles. (2) Phenomena of severe intoxication appear to result from intensified stimulation, or enfeeblement and exhaustion from overestimulation. (3) Death occurs from (1) respiratory insufficiency terminating in asphyxiation or in exhaustion of the respiratory center, or (2) circulatory insufficiency, which leads, presumably, to accumulation of the toxic agent, and which may induce edema of the lungs or end in exhaustion of the heart muscle. The therapeutics consist in: (1) Elimination of the toxic agent by internal hydrotherapy, (2) amelioration of harmful influences (*a*) fever—external hydrotherapy; pain—ice bag and analgesics; restlessness, insomnia, delirium—external hydrotherapy, analgesics, and narcotics. (*b*) Respiratory indications. (1) Heroin or morphine every two hours for a respiratory-rate of 36 or greater. (2) O—inhalation is probably useless and may be harmful. (*c*) Circulatory indications. (1) Circulatory sedatives probably contraindicated, except the nitrates, which may be of benefit during early periods of increased cardiac work. (2) Alcohol indicated in alcoholic cases may be of benefit when there is no circulatory insufficiency. (3) Circulatory stimulants contraindicated, except members of the digitalis series. The indication is low blood-pressure associated with one or more of three conditions, namely, respiratory insufficiency, small urinary output, oedema of the lungs.

Cause of Angina Pectoris.—Since angina pectoris may occur in patients suffering with most diverse forms of heart lesion, and even in patients without any evidence of cardiac disease. JAMES MACKENZIE (*Brit. Med. Jour.*, Oct. 7, 1905) concludes that there must exist some common causative factor. Symptoms of this disease may arise in (1) aortic aneurysm, (2) aortic valvular disease, (3) atheroma of the coronary arteries, (4) myocardial degeneration, (5) increased arterial pressure of the elderly, and (6) arterial spasm of the young. The fact that angina pectoris appears only after the heart muscle

has been long exposed to excessive strain, points to the cause being situated in the muscle. It may be said with confidence that all the muscular functions of the heart save contractility can be shown to be normal in many patients who suffer from this disease. The pulsus alterans is a demonstrable sign of exhausted contractility, and its presence is always associated with symptoms that are included in the symptom-complex of angina pectoris. Each may be occasioned by the same exciting cause, *i.e.*, extra strain on the heart, and both may disappear with removal of that cause. The inference to be drawn from these facts is that the symptoms included in the term angina pectoris are so closely associated with an impairment of contractility of the muscle fibres of the heart that in all probability it will be found that this muscular insufficiency sustains a direct etiological relation to angina pectoris.

Albuminuria of Adolescents.—In discussing this phenomenon CLEMENT DUKES (*Brit. Med. Jour.*, Oct. 7, 1905) refers to that type of albuminuria which has been variously termed "early," "latent," "functional," "cyclic," "intermittent," and "postural." The chief significance of this disorder lies in the fact that it is often the cause of banishment from school, exclusion from the army, navy and civil service, and refusal of life assurance to those applicants so affected. An analysis of a series of records reveals that albuminuria exists in 16.27 per cent. of boys between the ages of thirteen and fourteen years. There are three types of constitution in which this form of albuminuria chiefly manifests itself. The first and largest class exhibit increased arterial tension in consequence of irritability of the vaso-motor nerves. The tension, however, is unstable, which symptom is pathognomonic. It is most frequently produced by excess of nitrogenous food, by imperfect action of the body scavengers, and by a hereditary tendency to gout. The next most extensive class comprises those who have cold, clammy, swollen, congested extremities, accompanied by a large, feeble, compressible pulse, arising from deficient vasomotor control. The heart participates in the general lack of tone, and dilates. Chilblains are frequent. The remaining class is made up of the spare, highly-strung, oversensitive neurotics. The pulse is thin, thready and unstable in tension. In general, albuminuria of adolescents appears to arise from a want of cardiovascular adjustment to changes of blood pressure, depending upon a certain state of the vasomotor system. In fact, there is perceived a congestive neurosis, and so long as the hyperemia persists transudation of serum-albumin through the dilated capillaries is liable to continue. When recognized and treated, there is little likelihood of this derangement proving the precursor of organic disease of the kidney. The general treatment resolves itself into such a regulation of life as will ensure the highest state of vitality during adolescence.

After-Effects of Diphtheria on the Heart.—F. W. WHITE (*Journal A. M. A.*, Oct. 21), from a study of seventy-eight cases of diphtheria with heart complications, after their discharge from the Boston City Hospital, and kept under observation for from five months to a year, and in none of which was there any evidence of heart disease antedating the diphtheria, deduces, in substance, the following conclusions: (1) The cardiac disturbance after diphtheria usually presents the picture of a mitral insufficiency with irregular heart action and few symptoms. Occasionally there is only rapid pulse or cardiac irregularity alone. (2) Moderate disturbance of the heart is common after diphtheria, and in many cases persists for from two to six months after the original illness. (3) Frequently the cardiac lesion does not clear up in the first half year, but lasts much longer; some patients recover; others probably do not. The duration of the heart trouble is usually in proportion to the severity of the original illness. (4) The fact that only few heart symptoms are often present after diphtheria should not mislead us as to the importance of the injury to the heart. (5) Cardiac disturbance of long duration after diphtheria may be entirely recovered from, and hope should not be given up in individual cases. (6) The treatment of the condition consists in a sufficient period of rest in bed, and then in watching the effects of mild exercise on the heart for several months at least and grading it to meet individual requirements. White hopes to follow up his cases still farther, and, therefore, considers his paper as a preliminary report.

Acute Pericarditis Complicating Acute Lobar Pneumonia.—J. A. CHATARD (*Bull. of the Johns Hopkins Hosp.*, October, 1905) in a clinical review of acute pericarditis complicating acute lobar pneumonia states that during a period of sixteen years 665 patients suffering from acute lobar pneumonia were treated at the Johns Hopkins Hospital. Acute pericarditis was present in 31 patients or 4.66 per cent. In 13 or 41.9 per cent. pericarditis was recognized during life; in the remaining 18 patients it was only recognized at autopsy. The average age of the patients was 32.5 years. The complication occurred most frequently in young adults. There were 22 males and 9 females. Of the males 10 were white and 12 colored; among the females 5 were white and 4 were colored. The average duration was six days. The right lung was involved 13 times; the left lung 5 times, and both lungs 13 times. Pleurisy was by far the most common complication. The mortality was extremely high, 29 patients out of 31 dying, or about 93.5 per cent. A marked history of alcoholism was given by 10 patients. Two patients gave a history of previous attacks of pneumonia. Another had had both pneumonia and acute rheumatic fever previously, and one either acute rheumatic fever only. Two patients showed a general pneumococcus infection, the organism being cultivated from the blood during life. Delirium occurred in 19.3 per cent. The autopsy records showed the variety of pericarditis as follows in order of frequency: Acute fibrino-purulent pericarditis, 10 times; acute serofibrinous pericarditis, 9 times; acute fibrinous pericarditis, 8 times; acute purulent pericarditis, 2 times. In 3 instances only was a very large amount of fluid present. The respective amounts in these three cases were: 500 c.c.; 800 c.c.; and 1,000 c.c. The pneumococcus was obtained in culture in 23 instances. In looking over the clinical and pathological records, one is especially struck with the seriousness of pericarditis in acute lobar pneumonia. A striking fact is the more frequent involvement of the lung and pleura on the right side. This would seem to indicate that pericarditis is due to a metastatic process, through the blood or lymphatics rather than by direct extension from the lung or pleura. This is of interest in the light of the fact that great stress has been laid by many in previous reports on the synchronous involvement of the left lung and pleura. The author concludes by stating

that pericarditis developing during the course of an acute lobar pneumonia is a most serious and important complication, occurring more especially in young adults, frequently insidious, latent and often not recognized during life. It appears to arise as frequently by a metastatic process as by direct extension. Treatment is very unsatisfactory and often unaviling, except when the fluid is present, in which case it is more surgical than medical. In all patients with pneumonia a most careful watch should be kept on the heart, as this complication appears to be much more frequent than is generally supposed, and urgent treatment in the early stages may materially reduce a high mortality.

Insomnia and Its Treatment.—J. SANDERSON CHRISTISON (*Am. Med.*, Oct. 14, 1905) enters into a full discussion of the short periods of sleep among men of eminence; the phenomena of exhausted soldiers marching while sound asleep; the control of sleep by the will; age in relation to length and depth of sleep; quantity of food and the seasons of the year in relation to sleep; some long sleepers; sleeping sickness; suspended animation in man and animals; effects of forced privation of sleep; habits of sleep in animals—day and night sleepers.

Tuberculosis of the Kidney.—J. G. SHERRILL (*Journal A. M. A.*, Oct. 14) thinks that tuberculosis of the kidney deserves more attention than it has generally received; it is claimed that it exists in 2 per cent. of all tuberculous cases. The infection is mainly through the blood, though it may be through contiguity or contact with other infected organs, or may be an ascending one from the genito-urinary tract. Any age is liable, but the conditions seems to be the most common in early maturity, between the twentieth and thirtieth years. Figures differ as to the relative proportions of the sexes affected. In case there is a general tuberculosis, both kidneys are involved in two-thirds of the cases, but if the infection is only renal it is usually unilateral. In circulatory infection the bacilli are localized near the blood vessels, and there produce their characteristic cell proliferation, and the tuberculous process sooner or later progresses to other portions of the organ, so that localized regions or the whole kidney may be involved. The various pathological changes are described. In some rare cases a mixed infection may cause destruction of the tubercle bacilli and recovery ensue. In most cases, the onset of the disease is insidious. The symptoms, pain in the back, paraumbilical, subcostal and lumbar tenderness, vesical irritation, pyuria, hematuria and albuminuria are noted. The presence of tubercle bacilli in the urine, though important, is not an infallible symptom, as they may be present there without pathologic change in the urinary tract. Nor is their absence a proof that the kidney is sound. The general symptoms are those of tuberculosis anywhere; Sherrill is inclined to think that too much stress has been laid on loss of flesh as a symptom. The diagnosis is to be made by the history, general condition, pain less severe than that in stone, and coming on slowly as a rule, dysuria, polyuria, hematuria, pyuria in acid urine, and the presence of albumin. With these the finding of tubercle bacilli in the urine will be conclusive. The conditions most likely to be mistaken for this disease are: Calculus, pyelonephrosis, renal new growths, tuberculosis of the bladder and cystitis. The detailed differential diagnosis from these conditions is given at some length. When the bladder is not diseased and the question is between calculus and tuberculosis, Sherrill believes that ureteral catheterization is justifiable, and, as a means of diagnosis, unequaled. It also tells which kidney is healthy or at least diseased. The prognosis is usually bad except when only one kidney is affected, the condition recognized early and treated surgically. Recovery without operation is possible, but is rare. The treatment, of course, is surgical, but where it is impracticable, the usual methods of treating tuberculosis should be employed.

Pneumonia in the Young.—E. F. WELLS (*Journal A. M. A.*, Oct. 14) points out that pneumonia is most frequent in early childhood, and next most frequent in full maturity from thirty to fifty years of age. He limits the term to pneumococcal infection, and the fact that the pneumococcus is present in the mouths and upper respiratory passages of probably 50 per cent. of healthy persons accounts for the frequency of the disease. He has never failed to find the pneumococcus in several hundred examinations of persons who have had pneumonia. But he has not found it in recently born infants, which accounts for the infrequency of the disease in the very earliest periods of life. Once the throat becomes infected, however, the child is liable to pneumonia. The symptoms, high temperature, rapid pulse and breathing, pain, cough, the well-known expiratory grunt, the loss of appetite and the physical signs are described. The chill which is usually conspicuous in adults is absent in young infants and is infrequent in young children. The child is usually dull and apathetic; surface pallor is the rule. The duration of the disease is shorter in infants than in adults, and unless some complication like empyema intervenes, usually ends by crisis, or less frequently by lysis, in a week or more. Serious complications are more frequent in children. Serious pleurisy is less common than in adults. In case empyema intervenes, it is generally limited by adhesions, and if left alone usually evacuates itself into a bronchus or externally, and after a prolonged convalescence, complete or partial recovery occurs or the child may be worn out and die from exhaustion. These cases are usually recognizable, but, if in doubt, he advises using the exploring needle without hesitation. Other complications mentioned are otitis, with rare meningeal involvement, but usually recovery without impairment of hearing is the rule. Abscess, pericarditis, peritonitis, arthritis and endocarditis are rare. The prognosis of infantile pneumonia is unsettled by statistics, but Wells thinks that in private practice at least it is better than in the adult. The treatment necessarily must be more or less individual. The healthy child must be kept out of the way of the infected one. Exhaustion and too profound sleep must be guarded against in the infected child and the fluids of the body, whether intravascular or extravascular, must be cleansed of the soluble toxins. Wells would give the child with pneumonia plenty of liquids to drink and in addition normal salt solution by rectum if necessary. Theoretically, this washes out the toxins. Practically, Wells employs and advises it. In his practice he gives moderately large doses of a reliable tincture of digitalis with the enemata if they are retained. Other vaso-motor tonics may also be given. For high fever and restlessness he prefers tepid sponging followed by alcohol, repeated as required. This failing, he uses guaicol in suitable dosage to the thin skin of the flexures, supplemented by the ice-cap at intervals. Oxygen inhalations are useful when the patient is not fretted

by their use. Strychnia, aromatic spirits of ammonia, etc., may be used as required. In case of profound nervous failure with apathy, abdominal distension, etc., the little patient may be aroused by a stimulating glycerinated enema. The best medical attention and nursing and fresh air are required, and the child should be disturbed as little as possible. Complications should receive prompt and careful attention, and in those requiring it (especially if empyema be present) prompt surgical relief should be afforded.

The Corroding Action of the Ovum in Ectopic Pregnancy.—J. RIDDLE GOFFE (*Journal A. M. A.*, Nov. 4) calls attention to recent researches that have demonstrated the destructive action of the inpregnated ovum in its implantation on the uterine tissues. He utilizes this fact to explain certain cases in which, with the symptoms of ectopic pregnancy and the presence of more or less extensive pelvic hemorrhage, microscopical examination reveals no traces of the products of conception, or of the source of the bleeding. The effect of the corrosive action above mentioned, he says, is readily conceived in cases in which the implantation of the ovum is transferred from the uterus to the thin-walled Fallopian tube. While generally successfully accomplished it must frequently happen that the corrosive process extends completely through the tubal wall or brings the intervillous spaces so near the surface that the blood pressure ruptures the peritoneum and causes serious hemorrhage. He gives an account of a case in which this seems to have occurred, and refers to another reported by Paul Zweifel, in which hemorrhage occurred eight days after the first omissions of the menses, and the ovum was found to have eroded completely through the tube and serosa into the peritoneal cavity. It would be a fair inference, he thinks, that when a woman has missed one menstrual period and is attacked with sharp hypogastric pain, collapse and vomitting, with marked feeble pulse, and without rise of temperature, that an erosion has occurred through a gravid tube, and the need of prompt operation should be at once suggested.

Relation Between Arterial Hypertension and the Indicanuria of Nephritis.—HARRIS A. HOUGHTON (*Am. Med.*, Oct. 7, 1905) attempts to demonstrate the rôle which the products of intestinal putrefaction may play as part of the intoxication of uremia. Four cases of nephritis in which there was indicanuria and arterial hypertension are recorded in which the pressure was materially reduced by the use of naphthalin as an intestinal antiseptic. That the naphthalin acted as an intestinal antiseptic was shown by a decrease in the amount of indicanuria and that the intestinal toxines actually formed part of the uremic condition was shown by the decrease in arterial pressure as the intestinal putrefaction decreased. Houghton argues that it is better to treat uremia by decreasing the supply of retained toxins which cause it than it is to administer vasodilators in attempting to neutralize their effects. One source is the intestine, and this is more or less under control. The anemia of nephritis can possibly be combatted best by allowing proteid food, when it is disintegrated in the intestine without the formation of indol.

Cephalic Tetanus.—J. H. LLOYD (*Journal A. M. A.*, Oct. 7) reports a case of this rather rare variety of tetanus, in which, contrary to the usual rule, the facial paralysis was bilateral. As in all other recorded cases of this kind, except one, the original inoculation wound was on the bridge of the nose. He reviews the chief facts of note in cephalic tetanus, and recapitulates briefly the other cases, seven in all, of facial diplegia in head tetanus that he has found in the literature. The peculiar fact that the same infection causes paralysis of one nerve while inducing tetanic spasm in others, is remarked, but cannot be very well explained. Autopsy results, he states, are so far negative. The prognosis of head tetanus is a little better than in the usual type, but it is a grave disease with a very high mortality. Lloyd's patient came within the "chronic" group, the symptoms only appearing on the fourteenth day after the injury, and she made a good recovery. The peculiarities of the case, it being the seventh or eighth thus far reported with diplegia, render it of special interest.

SURGERY.

Surgical Anatomy of the Small Intestine and Its Mesentery.—In a comprehensive study of this subject, GEORGE H. MONKS (*Annal. of Surg.*, October, 1905) found that the length of the jejuno-ileum, measured from the end of the duodenum to the ileocæcal valve, was a little less than 23 feet (7.01 meters), the shortest being 14 feet (4.27 meters), and the longest 33 feet 10 inches (10.31 meters). The mesentery gradually increases in length from the duodenum to the fourth or fifth foot of the gut, where it usually reaches its maximum. Opposite the lower end of the gut the length diminishes rather more abruptly. Throwing out of consideration these parts, the length varies from 5 to 7 inches (13 to 18 centimeters). Short mesenteries are usually short throughout and long ones usually long throughout; all, however, showing some variation in length in the course of the canal. As a rule, the longer the intestine the longer the mesentery, and conversely, but there exist marked exceptions. In regard to the distance to which different loops of intestine may be drawn downward in the median line, it was learned that each loop, taken successively from above downward, reached a little lower than the preceding one. A loop from the first foot of the jejunum could, on the average, be drawn to a point about 3 inches above the pubes. In all but one subject the pubes was reached by some part of the intestine. This usually occurred about the tenth foot of the canal. In about two-thirds of cases the free edge of some part of the gut reaches a point from 1 to 3 inches below that landmark. It was concluded from the arrangement, structure and blood supply that the jejunum was of far more functional value than the ileum, and that large ileal resections, for sufficient reasons, were justifiable. Studied in situ, the shape of the mesentery was demonstrated to be that of a flat structure, whose root is about 6 inches (15.25 centimeters) long and whose free border averages from 21 to 23 feet (6.40 to 7.01 meters) in length, while the distance from the base to its free edge is usually not more than 7 inches (18 centimeters). Half way between the root and the intestinal border the length is 23 inches (58 centimeters), and at its attachment to the bowel, 13 feet 8 inches (4.16 meters). The mesentery may well be described as consisting of two portions: (1) A proximal or flat portion, comprising that part (about two-thirds or three-fourths) which lies between the root and the somewhat indefinite line where the ruffled border begins. (2) A distal portion, or ruffled border which lies between the proximal portion and the intestine. To accommodate itself to the restricted space of the abdomen, the mesentery assumes curves and folds, lying in sheets, which become more numerous the farther the line is taken from the root. These sheets in the upper part of the abdomen leave their line of attachment more or less at right angle with the root, and are apt to be much flatter than those below, which pursue a course more or less parallel with

the root and show a greater tendency to lie in folds. That part of the mesentery which descends into the pelvis from the lower end of the mesenteric root is termed "the pelvic fold of the mesentery." Since it can usually be distinctly palpated, it is a valuable landmark in reaching the fossa to the left of the mesentery and may also assist in finding through a right iliac wound the lower part of the ileum as it is about to enter the cecum by curving the forefinger, after passing into the pelvis, upward around it. The intestine freed from its mesentery is approximately straight, but when the mesentery is attached, the intestine is obliged to follow a curved and tortuous course, and its free border is several feet longer than its mesenteric border. The result of this influence is to throw the intestine into a series of alternating loops of varying shapes, sizes and planes. The kinks so produced are usually confined to the lateral aspect of the gut. A distended and paralyzed intestine, filled with gas or semiliquid contents, does not at once empty itself through an enterostomy wound. The cause of this is obstruction from sharp curves and kinks, also from outside pressure on the tube, and further because the fluid portions in the dependent loops act as traps. Unless the intestine be gathered on a tube, it is impossible to pass any instrument into the gut without the probability of soon engaging the wall, usually in its free border. Another study was made for the purpose of determining through an abdominal wound which was the proximal end of an intestinal loop, and which the distal. This can be done by following down the mesentery on one side of the gut as far as the mesenteric root. In case twists of the mesentery are seen or felt, the loop should be rotated in such a manner as to untwist these and cause the intestine to run in the same direction as the base of the mesentery, when the mesentery, now parallel with its attachment, can be followed down to its base by the finger, and if neighboring coils are strongly retracted, by the eye.

Infection of the Knee-Joint.—From data obtained in the analysis of 310 cases, CARLETON P. FLINT (*Annal. of Surg.*, October, 1905) recognizes infection of the knee-joint as occurring in five groups of cases: (1) Clean knees operated. (2) Penetrating wounds. (3) Primary. (4) Metastatic. (5) Traumatic. Non-penetrating injuries, traumatic or operative, and knees independent of any injury in the course of some other infectious process or not, may present signs and symptoms not to be distinguished in the absence of bacteriological examination from the cardinal signs and symptoms of infection. Undoubtedly certain of these cases are infected, but it is not possible to diagnose these from such as may be due to trauma and those possibly due to toxins secondary to infection elsewhere. One point, however, is to be noted. Non-penetrating injuries to the joint rarely show signs and symptoms for any length of time. That the knee-joint does exercise a certain amount of germicidal power can be demonstrated bacteriologically. The frequency with which the knee-joint becomes sufficiently infected to demand operation is shown by the following statistics: operations upon clean knees, 4.6 per cent.; operation for recent (five days) traumatic non-penetrating injury, 11 per cent.; operation for pathological conditions other than traumatic injuries more than five days old, 2.9 per cent.; operations for simple fracture of the patella, 4.6 per cent.; operation for fracture of patella done after the fifth day, 1.2 per cent.; operation for fracture of patella done before the fifth day, 10.5 per cent.; penetrating injury of the knee-joint, 60 per cent.; compound fractures of patella, 78 per cent.; knees subjected to non-penetrating injury and not operated, 10 per cent. of operated septic cases; infected knees where no history of trauma exists or other evident septic focus in the body, 13 per cent. of operated septic cases; knees infected secondary to a focus elsewhere, 11 per cent. of operated septic cases. The operation of incision and drainage of an infected knee-joint has a mortality of 11 per cent. Of cases so treated 6.6 per cent. come to amputation before recovery, and 3.3 per cent. to resection. Most knee-joints, which have been infected, opened, drained and recovered, show varying degrees of functional disability, from slight limitation of motion to complete ankylosis with or without subluxaton. When operative interference is decided upon, it should be remembered that the knee-joint is a large abscess cavity filled with pockets and hard to drain. Therefore as radical an operation as possible should be done from the start. When opened the cavity should be irrigated with some antiseptic solution, and the patient placed in such a position as will secure the freest drainage. Usually this position is face down. In the less acute cases the leg should have continual traction to prevent subluxation.

PATHOLOGY AND BACTERIOLOGY.

Spirochæta in Syphilis.—More and more reports on the successful findings of *spirochætæ* in syphilis are constantly coming in so that there can now be little doubt that the true cause has at last been discovered. Thus, G. SOBERNHEIN and E. TOMASCZEWSKI (*Münch. med. Woch.*, Sept. 26, 1905) have examined all in all 58 cases of syphilis. The organism was found in 50 of these, but the eight negative ones were all tertiary cases. In 28 non-syphilitic cases the spirochæta was never found, though many hours were spent in looking through the slides. In the hanging drop, the *Spirochæta pallida* is an extremely delicate, absolutely straight structure which presents from 6 to 30 turns. At the ends, the turns are less high and may even be wanting altogether. The *spirochætæ* found in non-syphilitic lesions are always thicker and larger and seem also to possess more marked motility. The importance of a prolonged search is particularly emphasized, since the distribution is very uneven, and hours may elapse before one or more are found, even if the material is very infectious. Another important fact is the invariable presence of the spirochæta in secondary lesions, even if these appear very late after the infection, while in tertiary lesions, no matter how soon these develop after the initial induration, they are always absent. This is in perfect harmony with the observation that tertiary lesions are not communicable. K. HERXHEIMER (*Münch. med. Woch.*, same number) has obtained better results by staining the slides with an aqueous solution of gentian violet, saturated by heat. With this method, additonal details in the morphology of the *spirochæta* may be observed, which the Giemsa stain does not bring out. Thus, small, flat structures may be found in varying numbers within the body of the parasite, while at the ends there are often larger, more round or oval bodies which frequently do not stain at all. A number of other structures are described, which either adhere or lie external to the organism. A difference between *spirochætæ* of primary and secondary lesions could not be detected. Similar structures have been seen in other *spirochætæ*, but their nature is not clear; they may be nuclei or centrosomes.

Thymus Gland in Children.—Observations on over fifty cases taken consecutively in the ordinary course

of post-mortem work upon children induces J. M. FORTESCUE-BRICKDALE to conclude (*Lancet*, Oct. 7, 1905) that the usual weight of a microscopically normal thymus in a child under one year is less than 100 grains. The gland in children suffering from "primary atrophy" or marasmus is commonly, but not always, found fibrotic, the weight and size being also usually diminished. In children suffering from "secondary atrophy" the changes, though similar, are not so constant. Possibly some other factor than mere malnutrition or starvation may produce these fibrotic changes, since in a patient where pure starvation was produced, by congenital stenosis in the alimentary tract they were not observed. In cases of acute illness in children fibrosis of the thymus may accompany general wasting. It is difficult in these cases, however, to exclude previous disturbances of nutrition, especially among hospital patients. Enlargement of the thymus and other lymphatic structures in the body may occur as the result of acute toxic absorption, as in diphtheria, or a more chronic condition, as in lymphatism. In these enlarged glands eosinophile cells are numerous, but no special types are peculiar to either class. In some conditions, especially tuberculosis, cells with basophile or neutrophile granules seem to replace the eosinophiles, whereas in congenital heart disease eosinophiles are not found in the thymus at all. The large majority of glands examined showed fatty change. This degeneration was, in many cases, limited to the peripheral zone of the lobules. The cells of Hassall's corpuscles also occasionally showed fatty change, and infrequently true hyaline degeneration.

The Metabolism in Osteomalacia.—A case of osteomalacia in a young woman, sixteen years old, who who had been crippled for several years as the result of this disease, afforded J. E. GOLDTHWAIT, C. F. PAINTER, R. B. OSGOOD and F. H. MCCRUDDEN (*Am. Jour. Physiol.*, Nov. 1, 1905) the opportunity to study the metabolism in this disease. Their work seems to indicate that in osteomalacia there is at first a decalcification of the bony tissue; that the calcium is in part replaced by magnesium, but probably chiefly by an organic substance rich in sulphur, poor in phosphorus, similar to but not exactly like the normal organic matrix. If castration is performed during this period, the decalcification process is checked, and what has been lost is replaced. From Neumann's work it is seen that if the condition has lasted until it is very severe, the decalcification process finally comes to an end, but that after this castration does not restore the normal calcium metabolism.

Combined Aortic and Mitral Disease in Rheumatic Children.—In combined aortic and mitral incompetence, F. J. POYNTON (*Brit. Med. Jour.*, Oct. 7, 1905) claims that in most cases the mitral lesion is not a relative insufficiency secondary to aortic involvement, but that the combined lesion is the result of damage to both valves by rheumatism. Usually the mitral valve suffers first and the aortic later, either in the same attack or in a subsequent one. Such being the case, the mitral incompetency cannot be entirely dependent upon the aortic lesion, though no doubt the former is aggravated by it. The experimental study of heart disease shows that the infection of the aortic valve is often by direct continuity from the mitral, and in these cases the infection is usually a severe one. The cause of a fatal termination in severe cases of valvular disease is an attack of rheumatism. These patients rarely die solely from the mechanical difficulties of an injured heart, as now and again occurs in adult life. The lesions under consideration can be grouped clinically into three classes: In Class I, there is no sure evidence of aortic disease, and it is only of autopsy that some beading or thickening of the aortic segments is discovered. In this group the aortic lesion is of merely academic interest, but the finding of these slight lesions throws light upon a practical point, the disappearance of an aortic regurgitant bruit. In Class II, the physical signs show that mitral and aortic disease exist, but the mitral disease preponderates and the aortic lesion hardly influences either the symptoms or the course of the disease. In Class III, both lesions are apparent, but the dominating one is the aortic regurgitation. It is these cases which tempt the explanation of relative insufficiency as the cause of the mitral lesion, yet post-mortem evidence shows that the mitral valve is almost invariably damaged by endocarditis. Primary aortic endocarditis in childhood is rare. This fact coincides with experimental work, where only with difficulty is it possible to produce a primary endocarditis of the aortic valve, though it is easy to produce mitral endocarditis or the combined lesion.

Germ Centers of Lymphatic Glands and Secondary Carcinomatous Deposits.—A close resemblance often exists between the germ centers of lymphatic glands and secondary carcinomatous deposits. J. BURTON CLELAND briefly indicates (*Lancet*, September 16, 1905) the several appearances that the germ centers may present, and in what way they differ from carcinomatous deposits. The cells which compose the germ centers are larger than the surrounding lymphocytes, having more protoplasm and a larger and vesicular nucleus. The whole area stains lighter than the surrounding part. Mitotic figures are nearly always numerous, and at the edge of the area the cells rapidly, but by distinct gradations, become converted into lymphocytes. The areas are usually small and indistinctly circumscribed, and in such conditions are not likely to be mistaken for a cancerous growth. But when associated with chronic irritation they assume a most striking appearance, presenting an increase of size and of mitotic activity, which suggests a form of compensatory hypertrophy. These hypertrophied germ centers form very sharply defined spherical or oval areas, taking a much lighter color. The cells composing them are of nearly uniform size and a little smaller and much more regular than those of cancer; they are closely packed together with very little stroma, though an occasional capillary may be noticed; the nucleus resembles closely that of an epithelial cell; and mitoses are often more numerous or as numerous as in cancerous growth. All these characters show how hard it may be to distinguish the one from the other. The most important difference is found in the boundary zone of each. The somewhat larger and more irregular cells of carcinoma are separated sharply and distinctly and often by a thin zone of fibrous stroma from the surrounding lymphocytes, and each cell at the periphery can be relegated at once into one or other class of these two. This is not the case in the outer zone of germ centers. Here both germ center cells and lymphocytes tend to be arranged in concentric rings formed of a delicate fibrous tissue, and all gradations are seen between undoubted germ center cells and undoubted lymphocytes. Under low power the appearance of peripheral limitation is reversed.

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THE MODERN CRUSADE.

ONE of the most promising signs of the awakening of the conscience of the twentieth century is the universal uprising against the insidious foes of human life. No longer tolerated as irresistible antagonists, the dread diseases that annihilate a large part of the human race and permanently maim a still larger part, are now being opposed with all the weapons which modern scientific and social progress have been able to muster. The scientist and physician have benevolently contributed their full share of service in this warfare. But society at large has shamefully shirked its just tribute of responsibility in a struggle which for the numbers of its victims and the barbarity of its practices, makes the cruel wars of ancient and modern times appear in comparison like schoolboys' mock combat.

It is a credit to New York that within her boundaries has been organized among professional men one of the first societies whose object is to educate the public in the grim knowledge of the pernicious consequences of the social evil, a subject which has heretofore been left to the learned discourse of physicians and the flippant remarks or humorous gibes of the laity. The Society of Sanitary and Moral Prophylaxis has embarked upon a glorious career, and it is to be hoped that the leaders in all walks of life will assist in this important social campaign.

A propaganda of international scope, with more comprehensive aims than those of the New York Society, has recently been organized in Paris, under the auspices of a society having this pretentious title: "The International League of Mothers for the Defense of the Family Hearth against the great Plagues of the Twentieth Century." Under the presidency of Prof. Suarez Menendez, and the patronage of the intellectual leaders of France, including D'Arsonval, Berthelot, Bouchard, Fournier, Lancereaux, Lannelogue, Leroy Beaulieu, Ribot, Richet, etc., this society has started an educational campaign directed not only against syphilis and gonorrhea, but also against tuberculosis, alcoholism and the large infantile mortality. These are the five main scourges of modern times, and the number of their victims vastly exceed those of the plagues which ravaged Europe during the Middle Ages. The question of the diminishing birth-rate is insignificant when compared with that of the enormous mortality, suffering, poverty, social and economic disability and general deteriorating effect upon the coming race, resulting from these relentless foes of modern society.

The recognition of the grave aspects of the social evil is reflected in the open public discussion of this topic and the growing periodical literature devoted to its ventilation. As examples of the latter one may point to the *Zeitschrift für Bekämpfung der Geschlechtskrankheiten* and to *La Croisade Moderne*. The latter has just made its initial appearance, and represents a unique phase of the educational movement in the interests of preventive medicine. It is the organ of the above-mentioned International League, and is addressed mainly to the matrons of society, for it is through their beneficent influence in the home that it is hoped to eradicate the cankers of modern life. Unlike the numerous popular health magazines, it sets forth plainly the fact about the five great modern plagues, their relation to the home and the means by which the home may become the starting point for all efforts directed against these evils.

The time has come when for the sake of the integrity of the race, the veil of professional mystery must be lifted from these subjects. The public should know all. The modern drama of the Shaw variety justifies its exhibition of moral

deformities as a legitimate educational function of the stage. How much more important it is that the full light of day should be thrown upon those forms of physical disease which find their best evil in popular ignorance and indifference.

It is still a mooted question whether the public school is the proper agency for the teaching of sexual hygiene to adolescents. But there is no division of opinion as to the propriety and absolute necessity of such teaching in the home. The youth of both sexes should receive, along with the priceless heritage of manhood and womanhood, a knowledge of these subjects which have been considered too hideous for polite literature. The voice of modern gynecology eloquently proclaims that the future mother should be warned of the fell consequences of venereal contagion! The clean bill of health that the father of the future will demand of the suitor of his daughter's hand will equal in importance, if not surpass, that of social and financial credentials. It is anomalous that at this advanced period of civilization the sacred privilege of perpetuating the species should be sacrificed to misguided chance and ignorance. Yet, the whole story of patient suffering of the innocent victims of conjugal infection has not been told. Nor have sociologists begun to gauge the extent to which this blight has stunted the growth and retarded the evolution of the race.

The future ideal state will wage a relentless war against this and kindred evils. The campaign against tuberculosis is now in the ascendant, but at no distant date an equally vigorous campaign against alcoholism and the many causes of the high mortality among infants, will engage the serious attention of public men. The only efficient weapon is popular education, and the wide dissemination of the elementary facts about the five great modern plagues, whether by means of the lecture platform or by means of such non-technical periodicals as the *Croisade Moderne*, is to be welcomed as one of the most promising activities of the present age.

"WHO WOULD NOT BE A BOY?"

THE search for the elixir of youth has been as eagerly pursued as that for the philosopher's stone and perpetual motion, and has been, up to this time, considered equally chimerical. Ponce de Leon, to be sure, had vivid dreams of success, and Brown-Séquard considered it to be within his grasp. But they, like youth itself, had their fling, and still people grew old, until it became once more generally accepted that the three score years and ten allotted by the psalmist was correct.

Now, however, two claimants for the solution of the problem have appeared, and though differing from each other, not only as to theory, but in practice, have united on the single ground that, not only is such a consummation to be devoutly wished, but to be achieved. The first of these, the Rev. T. B. Gregory, has contributed an article to the press on this same foolish habit of growing old. It is quite a lengthy communication, and appears to embody a good deal of the philosophy of Father Williams, and to be built upon the virtues of commissions and omissions that were incidental to the life of that classical character "in the days of his youth." Added to this is the necessity for a general qualification for initiation into a "don't worry club" of the most approved pattern. For Gregory prescribes no chemical formula, and advocates no philter especially brewed, with which to fight all the decrepitudes of years. On the contrary, his advice is so simple that anyone can follow it and remain young, if only he has the necessary temperament to put faith in his counsel. This business, he says, of getting old, is largely a matter of will power, and in a cheerful strain he continues:

"We grow old because we permit ourselves to fall into the habit of thinking that we are old.

"We give up and let go; we lose our interest in things; we stop reading, stop thinking, stop taking a hand in the game of life; and when somebody refers to us as being old we enter no protest.

"The children are married, the farm or store is paid for; 'the old man' is fifty-five or sixty, the 'old woman' is fifty or fifty-five, and there isn't much more to do except to die. It is no uncommon sight to see men and women, hardly past their prime, so far as years go, looking and talking and thinking as though they were in the last stages of senility.

"They have allowed the fires of life to go out in their hearts. They have permitted themselves to become the victims of that wretched disease 'don't care.' In a word, they have ceased to assert themselves; have forgotten to use their will power; have abdicated the throne of their spiritual manhood and womanhood, and allowed themselves to pass under the sway of the lower forces."

There is a good deal more of this, and one begins to hope that perhaps Rider Haggard *was* correct in his portrayal of "She," and that it

will be possible for us "to live life over," if only we are good, when the Rev. Gregory gives a clerical slump, and abruptly dashes our new-found, freshly fledged hopes to the hard ground of practical fact, by the disappointing conclusion that "we cannot stop the flight of time: we cannot head off the one event that happeneth to all": but "we can keep on 'growing new wood,' and in that way keep on blossoming until the end."

All this, as we have said, is disappointing. We had higher hopes, more exalted aspirations than the mere sawing of new wood, and we have no direct or particular ambition to blossom to the end. So that it is with feelings of relief that we turn to Professor E. J. Kibblewhite, of London, who has a specific of his own for renewing youth, a treatment and regimen, and who is said to bear the external evidence of the efficacy of his own formula. Now E. J.'s particular elixir seems to be Glacial Acetic Acid, and this is the story concerning it. He says:

"It has long been noticed that the animals remarkable for their longevity have the faculty of renewing, at intervals, the skin, or shell, or other portions of their frame, in which the waste of the body becomes accumulated. After a certain age apparently the human body fails in the function of removing the dead waste of organic matter taken into the body. These substances accumulate in such quantities that they cannot be disposed of, and all ordinary efforts to remove them fail, just as the careless engineer fails, who does nothing but pour oil into his engine clogged up with dirt. If this dead waste be dissolved out of the body, the blood will do its work again, renovating the living parts again, as in youth. Otherwise it goes on, gradually clogging up the drain pipes. Hence, as men grow old, their skins harden and become like parchment, filled with indurated cement-like deposits, which can be felt in the flesh of old men."

All this, and what follows, is not new, and most of it is not true, but his personal experiences and the technic of the treatment is rather minutely given, and will doubtless prove of interest to anyone desiring to try the method.

"Sixteen years ago, after a good deal of previous experiment, I took up the use of glacial acetic acid, solid at forty degrees, as a means of dissolving the dead waste of the skin, using three parts of the acid to one of water. I shampooed the body vigorously with it, and then got into bed damp. I found in my own case, and that of others, that this treatment cured gout and banished all the aches and pains of fatigue."

Both methods of preserving youth are interesting, if nothing more, and those experimentally inclined may find their own specific midway between—if they have *faith*. For who can say but that the secret for which Faust sold his soul to Mephistopheles may not be obtained at the corner drug store for a matter of a few cents by those going after it, with a mind echoing to the music of rejuvenated hopes?

RHEUMATISM IN CHILDREN.

WHILE acute rheumatic arthritis is not frequent in children, it is an extremely interesting and important affection, as in those below the age of puberty, even more than later in life, rheumatic fever is likely to leave its serious mark on the heart, for the individual is often unable to stand the strain of subsequent development and growth sucessfully. Furthermore, certain nervous affections, notably chorea, are associated with rheumatism in children, and there is a distinct tendency to the recurrence of this and other sequelæ, or even to repetitions of the acute rheumatic arthritis.

For these and other reasons the teachings of pediatrists, held in a recent symposium on rheumatism in children before the New York Academy of Medicine, are of more than passing interest.

A number of significant points were emphasized by those who took part in the symposium, most of whom were men of large experience in children's ailments. There was general agreement that rheumatic fever is extremely uncommon in children under one year of age, and very rare under two years of age. As a rule, in infants as yet in arms, the diagnosis of rheumatism can be excluded at once without more ado from the very fact that somehow these children are not subject to the exposure which leads up to rheumatism. Just what is the reason for this immunity is not known. Two things seem to be very clear: one that the children have a very liberal amount of fluid in their diet, since they live almost exclusively on milk, and the other, that they are not exposed to the sudden changes of temperature which somehow predisposes to the occurrence of infection by rheumatism, for there was no doubt expressed but that acute

rheumatic arthritis is really an infectious disease.

In very young children, the most frequent source of error as regards rheumatism is scurvy. The differential diagnosis is not difficult, yet it is often missed by those not familiar with the fact, that the attempt to make food absolutely sterile for children by boiling has resulted in this curious disturbance of nutrition which was thought to be banished forever from large centers of population by our knowledge of the necessity for a varied diet. Many patients with the disease are seen every year in the large cities of this country, and where there is any doubt, the substitution of a raw milk diet with a certain amount of fruit acids is almost sure to bring an improvement that makes the cause of the pathological condition clear.

Pseudo-rheumatism occupies almost as large a place in children as it does in adults. The most serious conditions that are mistakenly called rheumatism are those due to tuberculosis of the larger joints. Suspicion must be especially aroused if abdominal pains occur, for which no good reason can be found, in any intestinal ailment. In these cases, Pott's disease is nearly always insidiously beginning. To diagnose rheumatism of the abdominal muscles in a child, or of the hip-joint, is almost criminal. The hip is practically never singled out by genuine acute rheumatic arthritis for invasion. Only very rarely is the knee so affected. When pains are complained of in the knee, there is either a tuberculous affection of the hip, or the knee itself is beginning to suffer from the ravages of the tubercle bacilli. To give such children the ordinary coal-tar products usually recommended in rheumatism is sure to render their condition worse than before, and may, indeed, prove serious. Rest, with plenty of air and food, are especially indicated, and must be begun as soon as possible. The other forms of pseudo-rheumatism are less serious and consist of sprains and injuries with the overtiredness that sometimes comes in very active children, leaving a painful condition for several days. To make a diagnosis of rheumatism in such affections has the unfortunate result that the child is supposed to have already had one attack of rheumatism, and subsequent complaints of discomfort of other kinds are almost sure to be treated by so-called rheumatic remedies, without more ado.

There seems no doubt that in children a distinct tendency to the recurrence of rheumatism may exist. As a rule, the repetitions of the affection are of the subacute form, but prove to be seriously weakening for the patient. Climate is of some importance in the treatment of this set of manifestations of the disease, and yet has not as much influence as might be expected. A perfectly equable climate will not guarantee a child against future attacks. The physical condition is of the greatest importance, and it is the increase of resistive vitality which forms the best assurance against future attacks. The seashore, contrary to what might be expected from the dampness of the air, is a favorable place for such children. Salt dampness, according to the old tradition, is not depressing. Most of them, however, do best in the mountains, but care must be taken in the selection rather of the locality in which they live than in the region to which they shall go. For instance, living in a damp valley in the mountains will almost surely prove deleterious, while life on a neighboring hill a few miles away, in the sunlight, and brisk air, will almost surely be beneficial. Nearness to inland lakes and streams is not, as a rule, a favorable site for the treatment of children suffering from rheumatism when a change of climate has been determined upon.

While there is general agreement that the salicylates are the best remedies for the treatment of rheumatic symptoms, there is a distinct growth of feeling that these drugs must not be considered as a true specific for the disease. In some cases the salicylates fail to relieve any of the symptoms. On the other hand, the use of the salicylates over a prolonged period is likely to add to the anemia, which is such a characteristic sequel of the genuine rheumatic attack. Hence the necessity for the reduction of the dose as soon as the acute symptoms are under control. The child's restlessness must be relieved, for movement is almost sure by disturbance of the heart to leave that delicate organ open to attack, and that is the most serious symptom to be feared. There is practical agreement that diet means very little in the treatment of these cases, but that, above all, the dietary must not be too limited. Children must be tempted to take the cereals in various forms as well as milk, and even meat products must not be denied them as soon as the fever has passed away. In general, there is a noteworthy departure from the idea either of specific medication or of speci-

fic diet for rheumatism, and an emphasis on the opinion that each case must be treated individually and that children must be kept in as good physical condition as possible.

ECHOES AND NEWS.

NEW YORK.

For Consumptives.—The trustees of the Long Island Open Air Sanatorium, to be erected near Medford, L. I., have issued an appeal for funds. The sanatorium will be for the open air treatment of consumptives, and, as it will receive no help from the city, people interested in the cure of tuberculosis are asked to contribute. The sanatorium will be for the use of Brooklyn and Long Island tuberculosis sufferers. In Brooklyn there are over 10,000 consumptives, most of whom are unable to procure proper treatment because of its cost. Patients will be charged only a nominal sum, which in no case will exceed $6 a week. The estimated cost of the land, building and equipment is $50,000, and the trustees have thought it desirable to appeal to the public for small contributions. After the money for building and equipping the sanatorium is raised, its projectors think it will be self-supporting. Every person who subscribes $5 becomes a member of the organization that manages the sanatorium and can vote for the trustees. Contributions will be received by any of the following trustees, all of the Borough of Brooklyn: The Rev. J. F. Carson, of the Central Presbyterian Church; the Rev. S. Parkes Cadman, of the Central Congregational Church; the Rev. Alexander Vance, of St. Michael's Church, and Dr. Horace Greely, of 147 Pacific Street. Checks should be made payable to Dr. H. B. Jones, the treasurer.

What a Doctor Can Do.—Up to four years ago the best thing the Street Cleaning Department could find to do with the stuff collected from the streets and homes of New York was to tow it out to sea and dump it overboard. There was a theory that most of the stuff thus disposed of would sink and the rest be carried away from shore by current and wave. The theory was not held by seaside dwellers. They knew that much of the waste matter drifted in shore, to litter the beaches, breed disease and depreciate the value of real estate. It was a wasteful, a dangerous, a most primitive solution of a problem that every community must tackle, and the Street Cleaning Department, costly and inefficient, was by no means a popular institution. To-day scarcely a trace of the old system remains. Nothing is towed to sea. The positively useless matter is incinerated with as little offence as may be. Everything of value or of use is turned to profit. The ashes and heavy rubbish suitable for the purpose are used to build new land for the city. At Riker's Island eighty-four acres have been made already. Each acre is worth not less than $10,000. Within four years 185 acres more will have been made, land built up from the bottom, made by the city, adaptable to many municipal uses, and made with what four years ago would have been dumped into the sea at heavy expense. In Brooklyn the city is redeeming the sunken meadows along Coney Island Creek. So far eighty acres at once worthless property has been reclaimed. Now the Government wants to buy ashes from the city to complete the fill at Governors Island. A good record for four years. The lighter rubbish is not wasted. A contractor picks it over, paying a good price for the privilege. What he rejects goes into the furnaces under the boilers at the Williamsburg Bridge and at the Forty-seventh Street dump. It lights the Williamsburg Bridge, the public schools in the vicinity, the Street Cleaning Department stables. These plants are young now. At the Williamsburg Bridge plant alone a saving in the cost of final disposition of $75 a day is made, and the light produced is worth $80 daily. The operating expenses of the plant are paid by the money received for the picking privilege. The investment of city money was $83,000. The revenue produced by it is $52,000 a year. This is a return of 63 per cent. a year. Here is natural, legitimate municipal ownership and operation, not exploited as a political issue or a demagogic appeal to class hatred. This is only a page out of the history of the Street Cleaning Department. It tells only a part of the story of the last four years of progress. One man has written it, a man who made a real effort to improve New York, a man who has accomplished something. It is a record to be proud of. On the roster of those who are helping to civilize New York's municipal government the name of Dr. John McGaw Woodbury stands pretty near the top.—*New York Sun.*

Sixth New York State Conference of Charities and Correction.—The Sixth New York State Conference of Charities and Correction, recently in session in New York City, has been marked by a large attendance and a vigorous discussion of some of the more pressing social problems of the commonwealth. Among other topics discussed was the care of the sick and mentally defective. Farm work can play a large part in curing insanity bred in the tenements, according to William Mabon, president of the State Commission in Lunacy, who reported as chairman of the Committee on the Sick and Mentally Defective.

"Occupation," he said, "is one of the most important curative agents used by the medical officers of our hospitals." The two largest farms which differ widely in type and fertility *vis.*, those at Central Islip and Willard, give occupation to hundreds of patients in every kind of farm work, gardening and fruit growing, in grading of grounds, etc., with most excellent results in the improved health of all patients thus engaged. Indeed, Superintendent Smith, of the Central Islip State Hospital, whose patients come from the crowded East Side of New York, reports that the transition from the sedentary occupations followed in the slums to the bracing outdoor work assigned them has brought about some striking results. He reports that 30 per cent. of all cases admitted during the year were discharged as recovered. Perhaps the most signal advance proposed by Dr. Mabon is for emergency hospitals for acute cases. "With the impetus afforded by the provision of funds to establish a reception hospital in the city of New York for 200 patients, the commission in lunacy next proposes to urge upon the legislature at its forthcoming session, the desirability of providing special appropriations for the construction of small acute hospitals, accommodating from sixty to eighty patients each, in connection with such of the existing state hospitals as are not at the present time properly equipped for the care of acute cases. The absolute necessity of providing every possible facility for the cure of curable patients, not to mention the true economy of such procedure, must be apparent to every novice in social economy.

"The wage-earner must, if possible, be restored to his family; he must have medication, adequate nursing, rest in quiet, sunlit rooms, massage, proper diet, diver-

sion, and an intelligent, well-directed effort to divert his mind from every vexing or harassing condition. All this involves a large outlay, but of its wisdom there can be no doubt. The chief difficulty in erecting appropriate buildings of this class lies in the present statutory restrictions of $500 per capita for buildings and equipment. This will not suffice for buildings for the acute and curable. Probably $1,000 per capita will be required under plans which have already been prepared under the direction of the commission by the state architect. Delay in recommending the construction of these buildings has resulted from the belief of the commission that the comfortable *housing* of all of the insane was of first importance. With appropriations already in hand, however, accommodations for custodial care of all the insane which it is estimated will require it to October 1, 1906, will be provided, and special attention may then be given to the more important feature of treatment for the acute class."

The utter inadequacy of the present state provision for imbeciles and idiots was brought out. Some of these inmates have had to be transferred to orphanages, adult patients have been domiciled in buildings designed for training defective children, the county almshouses still have to care for 207 feeble-minded women of child-bearing age who should be transferred to custodial asylums, and altogether provision for these unfortunates is still deplorably backward and hampered in New York State.

The Care of the Sick Outside of Institutions.—"Let us deplete the ever-growing supply of mental invalids to the big institutions," said Dr. Bertha A. Rosenfeld, of St. Rose's Settlement, New York City. "Let us prevent many acute cases from becoming chronic by giving them real care from the first. It would be deemed inhuman were a typhoid fever or pneumonia patient obliged to wait two or three days for a legal process before skilled treatment could be given; the same would be the opinion regarding a surgical case. Yet in mental disease there does occur this often fatal delay of necessary care. It is an evil resulting from the legal measures required to prevent any unjust commitment. This protection for the many works injury to some. What is the remedy? Have mental wards in general hospitals. Mental patients are entitled to the consideration of a general hospital. To those in whom delirium and consequent irresponsibility have developed—a general hospital should be open just as surely as to a critical surgical or medical case. The longer a disease goes unchecked, the less power remains in the patient's own system to throw it off. In very many cases of mental illness, fear is an element of the disease itself, and this makes the physician's work more difficult. One of the first steps in the curative process is to establish confidence in the patient's mind. Confidence help to quiet the nervous system, which is a dominant influence in resisting disease. This quieting of the nervous system is accomplished more quickly in a familiar environment with a well-known physician in attendance. Where will these be found? In a general hospital near the patient's own home. Such humane measures exist in the Albany Hospital where ward 'F' deals with mental diseases coming directly, or developing in the other wards. Dr. Mosher's reports show that real care of the insane is given in the Albany Hospital district, the opportunity for such being near at hand. I fully agree with his belief that there can be no greater charity than that which promotes the recovery from acute attacks of mental disorders."

PHILADELPHIA.

Pupils Ordered from School.—Dr. Samuel G. Dixon, Commissioner of Health, ordered that 400 of the pupils attending the schols at Pottsville be forced to remain at home until they had been properly vaccinated. Some of the parents insist that they will not educate their children if vaccination be compulsory.

Meeting of the County Medical Society.—The society held its regular meeting November 22, 1905. The president, Dr. J. M. Anders, occupied the chair. The scientific program was offered by Dr. Joseph Sailer, who read a paper on "The Quantitative Estimation of the Stomach-contents." Dr. J. Dutton Steele read a paper entitled "The Treatment of Some Phases of Gastric Indigestion." Then Dr. John B. Deaver presented a paper on "The Surgical Side of Gastric Indigestion." Dr. Alfred Hand read a paper on "Some of the Manifestations of Congenital Syphilis."

Pathological Society Meeting.—This society held its regular meeting Thursday, November 23, 1905. The president, Dr. W. L. M. Coplin, was in the chair. The first twenty minutes were devoted to the presentation of card specimens. Dr. W. T. Longcope showed a specimen of "Echinococcus of the Lung." Dr. Joseph McFarland presented a specimen which he believes is Echinococcus of the Spleen. Dr. Allen J. Smith showed Daughter Echinococcus Cysts. Dr. Addinel Hewson and Dr. A. G. Ellis showed Echinococcus of the Liver and Kidney. Dr. C. Y. White presented Echinococcus in Animals. Dr. John Funke presented a specimen showing the adhesion of two of the aortic cups which became separated from the arterial wall so that there appeared to be but two leaflets, and a second specimen of hemopericardium incident to the rupture of an aneurism of the first part of the aorta. The first paper was read by Dr. John Funke on the "Chemical and Microscopical Study of Urine During Life, Followed by Histological Examination of the Kidneys from the Same Patients." Dr. Joseph Walsh then read a paper on "Lesions of the Kidneys in Pulmonary Tuberculosis." Dr. Lawrence F. Flick, Dr. M. P. Ravenel and Dr. J. W. Irwin read a paper on "Pneumococci Infection in Relation to Hemorrhage in Pulmonary Tuberculosis" Dr. Alberyer then read a paper on "Cancer of the Bladder with Metastasis."

New Health Director Elected.—The speculation and the prediction with reference to the sucessor of Dr. Edward Martin was ended Monday when the Mayor announced his selection. In choosing Dr. W. L. M. Coplin, Professor of Pathology and Bacteriology in the Jefferson Medical College, as Director of the Department of Public Health and Charities, the Mayor has indeed made a wise selection, as shown by the work Dr. Coplin has accomplished. That Dr. Coplin is equal to the task before him is perfectly clear to every one associated with him, and to all now under him. He not only has great executive ability, but also possesses good judgment in selecting men to work and to cooperate with him. With the late Dr. E. O. Shakespeare and Dr. John Guiteras, now Professor of Medicine in the University of Havana, Dr. Coplin was appointed by ex-Mayor Stuart to organize the existing Bureau of Bacteriology and to examine the candidates for the appointment in the new department. All the recommendation of the commission were accepted. Later he served on the Civil Service Commission to examine applicants for positions in the department,

but when it became evident that appointments were made without due consideration of the results of the examination he withdrew several years afterward. Under President Harrison he was appointed on the United States Marine Hospital and Public Health Service, acting as Inspector of Immigrants at the time cholera was prevalent in Europe. During the same time he organized in connection with the sugar refineries an emergency service for the care of cases that might develop, and he had charge of the detention of laborers and others who handled infected cargoes coming from Europe. The laboratories of the Jefferson Medical College Hospital were organized, developed and systematized by him.

CHICAGO.

Election of Dr. Andrews.—Dr. Albert H. Andrews has been elected Professor of Otology and Rhinolaryngology in the Chicago Eye, Ear, Nose and Throat College.

An Epidemic of Jaundice.—The Illinois State Board of Health has instituted an investigation in regard to an epidemic of catarrhal jaundice, the cause and nature of which are obscure. The condition seems to prevail particularly in Mount Pulaski and Rushville.

Chicago Urological Society Elects Officers.—At a meeting of this Society, held in October, Dr. Wm. L. Baum was elected President; Dr. Gustav Kolischer, Vice-President, and Dr. J. Allen Patton, Secretary. The Society meets the last Thursday of each month, excepting July, August and September. All regular practitioners in good standing in Cook County, who are interested in medical or surgical urology, are eligible to membership.

State of Chicago's Health.—According to the weekly bulletin of the Chicago Health Department, for the week ended November 18, 510 deaths were reported, equivalent to an annual mortality rate of 13.35 per 1,000. The number of deaths was 31 greater than during the corresponding week of 1904, and 41 greater than for the preceding week of 1905. Pneumonia, for the first time this season, leads the death causes with 77, followed by consumption, with 70; nephritis, with 41; violence, including suicide, 37; heart disease, 36; cancer, with 31, and nervous diseases, with 21.

Panama and Its Health Problems.—Dr. Daniel R. Brower recently gave a lecture on this subject to a lay audience. He said that Panama was not the dangerous and unhealthy place that the world has been told. Five grains of quinine a day will give immunity from malaria, and careful attention to diet, a temperate life, drinking water that is boiled and sleeping in rooms carefully screened will guard against infection by the dreaded mosquito. The greatest cause of sickness in Panama is the disregard of hygienic rules. Most of those who go to the hospitals there are those who have indulged in intoxicants. The fact that 400 soldiers lived on the isthmus for five months with not a single case of sickness is the best proof that Panama is not the unhealthy region it is reputed to be.

New Hospital.—The new hospital of St. Bernard's, Hotel Dieu, was recently dedicated by Archbishop Quigley. This is to be one of the finest institutions of its kind in the city. The project of building was conceived eighteen months ago. The institution has accommodations for 280 patients. The building is 230 feet long and 176 feet deep. It has been made as near fireproof as modern science could accomplish. Five operating rooms have been arranged for, the emergency room to be on the first floor. Four operating rooms are on the fourth floor. There are five large wards, four small wards and five wards for children. The accommodations for children will be a considerable addition to the facilities of Chicago for taking care of the little ones. The Michael Reese Hospital has done much for them, but more room still is needed. The staff of physicians has not as yet been chosen.

GENERAL

The Late Professor Nencki.—On October 13 a bust of the late Professor M. Nencki was unveiled in the Chemical Department of the Institute of Experimental Medicine, St. Petersburg, of which the deceased scientist was the official head. Professor Pawlow delivered an address, in which he gave a sketch of Professor Nencki's life work.

Congress of Experimental Psychology.—The next meeting of the German Society of Experimental Psychology will be held at Würzburg on April 10 to 13. Reports will be represented on the following subjects: (1) The relations between experimental phonetics and psychology (by E. Krüger); (2) experimental aesthetics (by O. Külpe); (3) the psychology of reading (by F. Schumann); and psychiatry and individual psychology (by R. Sommer).

Some Oslerisms.—A volume of Counsels and Ideals from the Writings of William Osler, Regius Professor of Medicine at Oxford, is announced by Mr. Henry Frowde. It has been compiled by Dr. C. N. B. Camac, of New York, who explains that for his own purposes, in order to renew from time to time the personal influence "which, as pupils and internes, we had come to depend upon," he had for some years made extracts from Dr. Osler's lectures and addresses.

Conference of Medical Men.—At a conference held November 24, in Albany, of representatives of the medical interests of the State it was decided to favor for the present the retention of the three boards of medical examiners as now constituted. This conclusion was reached after representatives of the State medical societies and State medical boards discussed the advisability of substituting a single State medical board for the three now representing their respective schools of medicine. In the matter of the combined baccalaureate and professional course of seven instead of eight years leading to the degree of M.D., the progress made during the past year was approved, and the conference appointed a committee to prepare a syllabus acceptable to the medical colleges of the State and which should be the foundation of an elective course to be introduced into the junior and senior years of the colleges.

The Medical Profession in Japan.—Owing to various causes, the official register of licensed medical practitioners in Japan ceased to be trustworthy some years ago. An investigation as to the number of persons practising medicine and pharmacy was, therefore, made in 1901. It was found on July 31 of that year that the total number of practitioners was 33,508. Of these, 9,733 had passed a recognized examination, 1,297 were graduates of the Imperial University, 2,097 graduates of the higher schools, 2,283 graduates of local medical schools, 883 were licensed on the ground of official experience, and 74 were graduates of foreign medical schools. Of the whole number of practitioners 16,758 were in practice before the establishment of the register, and 401 were licensed to practice only within a limited district. The number of licenses to practice issued during 1901 was 1,219, of which 702 were granted to persons who had passed a qualifying

examination, 36 to graduates of the Imperial University, 274 to graduates of the higher schools, 202 to graduates of local medical schools, 4 to graduates of foreign schools, and 1 to a person previously in practice. During the year 863 practitioners died. As compared with 1900 there was a decrease of 7,416 in the number of registered practitioners; this is attributable not so much to any marked decrease in the number of persons entering the profession as to the wholesale weeding out of deceased or retired practitioners whose names still appeared on the list. The proportion of practitioners to population was for the whole of Japan 7.32 to every 10,000. The proportion in Tokio was 11.61, in Kochi 11.61, and in Ishikawa 10.79 to every 10,000 inhabitants.

Dr. Hemmeter Honored.—"There is nothing in the medical profession which can claim from its devotees a sundering of those ties which bind all human beings in their social relations. . . . You have demonstrated in your life the great truth that a man may be a great physician, yet eminent in other walks of life, cultivating to a high degree a love of the beautiful and good, as well as the true. Therefore, appreciation of intellect and of broad manhod alike prompted this testimonial from your friends." Thus, in the presence of a number of the foremost practitioners, clinicians and educators of the East, spoke Supervising Surgeon-General Walter Wyman, of the United States Marine Hospital Service, on behalf of the 95 subscribers, in presenting to Prof. John C. Hemmeter a handsome oil painting of himself in commemoration of the twentieth anniversary of his doctorate. In replying, Dr. Hemmeter made an appeal for "idealism in medicine," because, as he expressed it, he "was becoming impressed with the conviction that the sphere of action of the medical man is threatening to become too narrow and that disregard for high ideals in medicine has led to the temptation of too narrow an exclusiveness for the applied feature of this art of science, and that a disregard for ideals cannot fail to develop commercialism in medicine.

Prof. Thomas A. Ashby, of the University of Maryland, introduced General Wyman, who said, in part:

"I deem myself fortunate in having been selected by your friends to present to you this fine portrait in oil, commemorative of the twentieth anniversary of your doctorate. It has been a great pleasure to the committee, and especially myself, to have been able to participate in the work of this evening, and to unite in one expression the sentiments of your many professional admirers throughout the United States. It has been our effort to gather in this testimonial not only your own former and post-graduate pupils, but representative clinicians in other cities; and we made no appeal to your confrères in Baltimore, except when a request to that effect was received. We in other cities look upon this testimonial as an indication that the University of Maryland has taken a position among the leading institutions of medical learning in the country, having produced such leaders in medical research as Councilman A. C. Abbott, William T. Howard, Jr., Hemmeter and many others, and has had at all times some of the most effective clinicians and surgeons in its faculty. The fame of the alma mater is inseparably connected with and even depends upon the character of the work of its alumni. And in this connection we delight in the words which Notnagel wrote to the publishers of Dr. Hemmeter's works: 'They are the products of a master clinician; an inspiring teacher; an ornament to American medicine.'" Drs. Thomas A. Ashby and Charles G. Hill also spoke, thanking the committee for its efforts and praising Dr. Hemmeter and his work. In accepting the portrait, Dr. Hemmeter said: "I am beginning to feel a grudge against my Hopkins Association friends. During the spring, on hearing of an honorary LL.D. to be conferred, a friend said to me, 'Now, Hemmeter, it is time to buy a lot in the cemetery.' Such public honors mark the decline of activity. These distinctions occuring in the same year that a well-known medical writer has dedicated his work to me, together with the presentation of this artistic portrait have made me reflect seriously upon Dr. Osler's 'fixed idea,' namely, that 'men are comparatively useless after forty.' The 'fixed idea' reminds me that I too have a dominant conviction, which is 'idealism in medicine.'" During a long residence in Germany and under the edifying influence of inspiring teachers I have become impressed with the conviction that the sphere of action to the medical man is threatening to become too narrow. Starting from the assumption that the field of work for the Æsculapiad is part of that great objective world of law and order, the profession is not sufficiently realizing that the whole of nature does not consist of matter and motion alone, nor of spirit and will alone, but of both. Scholars and practitioners in medicine have been keenly alive to law and knowledge and material fact, but they have been occasionally blind to art, to poetry, to emotion, to the philosophy of the clasics and to the higher mental and spiritual environment which inspires and glorifies the realms of their magnificent science. Disregard for high ideals in medicine has led to the temptations in the direction of too narrow an exclusivenes for the practical aspect and applied features of this art and science. This disregard for ideals cannot fail to develop commercialism in medicine, a vice already strongly raising its head through the multiplicity of medical schools in this country. One of my cherished wishes is for the reduction of the number of medical schols by consolidation of three of the leading institutions. Those of us who have the conduct of these schools as part of our duties should not be hopeless of attaining this end, for reason and the collective wisdom of our representative medical colleagues should soon find some effective means of bearing down those obstacles, which individual shortsightedness, selfishness and passion oppose to all improvements and by which the highest hopes are continually blighted and the fairest prospects marred."

OBITUARY.

Dr. J. A. BICKERS, sixty-nine years old, of Madison, Va., died in the Astor House, New York City, last week, from a paralytic shock.

Dr. EMMA D. L. BURD, of Yonkers, died in that city on November 22 after a short illness in her sixty-second year. She was born in Brooklyn and was graduated from the University of the State of New York in 1891. Her father and grandfather were physicians, and she took up the study of medicine as a hobby. She leaves seven daughters, five of whom are married.

Dr. CLARENCE W. BARTOW, of the house staff of Roosevelt Hospital, the surgeon who was killed last week, when his ambulance was struck by an automobile, was born twenty-six years ago in Astoria, L. I., the son of Jacob Field Bartow. He was edu-

cated at Columbia, and was graduated from the College of Physicians and Surgeons last June. He was a member of the Psi Upsilon fraternity.

Prof. ALBERT VON KÖLLIKER died at Würzburg on November 1 at the advanced age of eighty-eight years, the last survivor of the group who were the founders of modern biology, the other members being Schwann, Schleiden and Virchow. Albert von Kölliker was born in 1817 at Zürich in Switzerland, and studied medicine at the university of that city. He then came to Berlin as an assistant to the celebrated anatomist, Professor Johannes von Müller. From Berlin he returned home and became an assistant to Professor von Henle, the author of the great handbook of descriptive anatomy. In 1843 he was recognized as a *privat-docent*, and in 1845 he was promoted to be extraordinary professor of comparative anatomy and physiology. He only held this appointment for two years, as in 1847 he was called upon to take the chair of anatomy and physiology at the University of Würzburg, then one of the principal centers of medical learning in Germany, where men such as Virchow, Bamberger and Scanzoni attracted medical students from every country of Europe. Kölliker on going to Würzburg made his students acquainted with the most recent advances in biology and reformed medical study by introducing practical work in microscopical anatomy and lectures on evolution. Until 1866 the conditions of his professorship combined the teaching of anatomy and physiology according to the custom of the time, but after that year he no longer lectured on physiology, which became a special branch of the medical curriculum. Notwithstanding his advanced age, he was fully occupied with the duties of his chair until 1898, when he discontinued his lectures on anatomy; he, however, lectured on the theory of evolution till 1901, when he retired altogether into private life. He passed his remaining days at Würzburg and devoted his leisure to writing an autobiography under the modest title of "Erinnerungen aus meinem Leben" ("Recollections of My Life"). By his death biology in general and anatomy in particular have lost one of their greatest exponents, a worker who extended their boundaries and contributed much to the revealing of the secrets of nature. His scientific work is very extensive, including histology and evolution, descriptive and comparative anatomy, physiology and zoology. He made most important researches in cellular histology, relative especially to the cell nucleus; other important studies were connected with the spermatozoa, the nervous ganglia and the sympathetic nerves. He increased our knowledge of the anatomy of the liver, of bones, and of the eye, and applied himself to the study of comparative anatomy and zoology. Apart from these special researches, he has published two great works —namely, his renowned "Handbook of Human Histology," which still is one of the standard treatises on the subject, and a text-book on evolution. Professor von Kölliker's death is not only a heavy loss for science, but also for the city, of which he has been a celebrity for more than half a century, and for his friends who loved him for his personal qualities.

Death of a Medical Explorer.—Medical men have been among the most conspicuous pioneers in the exploration of unknown lands, and the names of doctors are writ large in the history of colonization. The most casual mention of the subject recalls the names of Mungo Park, David Livingstone, Sir John Rae, Emin Pacha and Sir John Kirk, to mention only the first that come to mind. Another has recently passed away in the person of Dr. Jean Marie Bayol. Born in 1849, he entered the French navy as a medical officer. He was attached to the expedition under Captain (now General) Gallieni, who in 1880 was commissioned to explore the region of Africa extending from the confluence of the Bafing and Bakoy rivers to Bammako on the Niger. He was afterwards placed in charge of an expedition to the Fonta-Djallon region, now French Guinea, and he succeeded in getting it officially recognized as a French protectorate. Having taken a prominent part in extending French influence in Central and West Africa, Dr. Bayol was, about 1889, appointed Lieutenant-Governor of the Rivieres du Sud provinces and dependencies. In that capacity he visited Dahomey with the object of negotiating a fresh treaty with King Gle-Gle, who had refused to be bound by one made with France in 1878. It was an arduous and dangerous undertaking. Although the King consulted him nearly every day about his health, Bayol had to endure much insolence at the hands of the heir to the throne. He was forced to walk between two rows of human heads just cut off, and to be present at human sacrifices. The mission was a failure, Prince Kondo declaring that since France had chosen to allow itself to be governed by a woman—to wit, the Republic—treaties previously signed with that country might be regarded as null and void. The king died, and was succeeded by Kondo, who took the name of Behanzin. His attitude toward the French became so aggressive that a punitive expedition had to be sent out under General Dodds. Dr. Bayol again narrowly escaped death at the hands of hostile natives when he was Governor of the Benin Settlements on the Ivory Coast. Owing to failing health, Dr. Bayol retired a few years ago with the title of Honorary Colonial Governor, and returned to France. His energetic spirit would not, however, allow him to stand aloof from public life. He was elected to the General Council of the Bouches-du-Rhône Department, which he afterward represented in the French Senate. His name deserves to be added to the ever-lengthening list of members of our profession who have done splendid service to their country as explorers and administrators *in partibus infidelium*.

CORRESPONDENCE.

OUR LONDON LETTER.

(From Our Special Correspondent.)

MEDICAL EDUCATION—AN EPISCOPAL UTTERANCE ON CHRISTIAN SCIENCE.

LONDON, November 18.

SPEAKING the other night at a dinner of that historic and useful body, the Apothecaries' Society, Mr. John Tweedy, President of the Royal College of Surgeons of England, took occasion to unburden his soul on the subject of medical education. He boldly declared that too much was being done in multiplication and increased stringency of examinations, and he would gladly see some mitigation of the ordeal through which medical students had to pass on their way to a diploma, without bating a jot of the requirements that really make for efficiency. He expressed the belief that if some of the restrictions and regulations were relaxed, a better class of practitioners than is turned out under the present system would be

produced. The student is overtaught and overexamined to an extent which leaves him no time for reflection or for the proper exercise of his intellect. The whole system, said the president, is one of "rush and cram." Mr. Tweedy laid the blame on the General Medical Council which had become more and more exacting in its demands. This has led to something like a rebellion on the part of the Colleges of Physicians and Surgeons which tried to resist what they called the "encroachment" of the council on their right to manage their examinations in their own way. The colleges have had to submit, but they have not done so with good grace. The fact is that these bodies, with the Apothecaries' Society, had almost a monopoly in England of the profitable business of selling licences to practice the art of healing. To insist on too high a standard of knowledge was bad for their trade; hence the tears of the president of the College of Surgeons, who had to admit that there is a steady falling off in its business. The colleges might have fought the council successfully had not their monopoly been destroyed by the creation of a number of new universities. These are already formidable competitors in the licensing market, and before long, owing to their superior advantages, they will take away all custom from the colleges who can only give a diploma that does not carry with it the coveted title of Dr." which they can offer in the form of the M.D. degree. Mr. Tweedy is not unnaturally angry at what he calls the "mushroom-like growth of universities throughout the land," and he hints that they ought not to have the power of granting degrees in themselves giving the license to practice. He professed to believe that medical examinations were best entrusted to medical corporations, for the reason that "the working practitioners of medicine are best qualified to regulate medical examinations and fix the standard. It is deplorable to see a really able man like Mr. Tweedy forced by the exigencies of his official position to use an argument which can only be characterized as disingenuous, for he must know that the examiners in the universities are just as much "working practitioners" as those of the Colleges of Physicians and Surgeons; in fact, they are often the self-same men. Mr. Tweedy lamented the fact that the number of medical students had, at least in England, declined during the past ten years, and he foretold that the decline would continue. It may safely be said, however, that this decline is looked upon by the medical profession as by no means an unmixed evil.

Christian Science which a dozen years ago was an unknown thing in this country, has now some fifteen churches dedicated to the cult of Mother Eddy. Three of these are in London, and the members are said to number a thousand, without reckoning several thousand "adherents" who like the Peri stand at the gate of Paradise without entering. Among the devotees are several people who in point of intellectual culture are considerably above the average. One of the most notable is Mrs. Butter, the wife of the Master of Trinity College, Cambridge. She was a Miss Ramsay and gained great academic fame by taking the first place in the classical Tripos—which is considered here a very remarkable achievement—some years ago. Her triumph was the more noteworthy inasmuch as she had not begun the study of Greek till she was seventeen. Within the Church of England itself there is a section, including a number of clergymen, who while not formally subscribing to the teachings of Mrs. Eddy, hold that the principle on which her doctrine is based is true. In their opinion it represents a power lost to the church, and they are working towards the recovery of that power by doing their utmost to spread belief in faith healing. This fact supplies the interpretation of a recent deliverance by the Bishop of London on Christian Science. Addressing a meeting of the Women's London Diocesan Association on November 11th he endeavored to make his audience realize the longing of the sick for visits which opened a way for possibly healing effects. In every one, he said, there was a personality which in time of sickness might be strengthened to bear, and even to triumph over pain. In illustration of this statement, the Bishop related an incident which had come under his notice. The wife of one of his clergymen was recently faced with the appalling prospect of having within two days to undergo an operation which might cost her her life. When he (the Bishop) called upon her, he found here in a state of moral collapse; partly owing to fear and partly to other causes, her faith and hope were entirely gone, and the physicians and surgeons recognized that it would be impossible for the operation to be performed while she was in that state. He would pass over the sacred half-hour that he spent with her, but it was a fact that two days later she walked from her room to the operating table without a quiver. The surgeons exclaimed: "What has the Bishop of London done to you?" She replied in simple, straightforward words: "Something which none of you could have done." To her inmost being, where the faith and the hope and the courage had died down and crumbled, with God's help alone he had brought to her that reinvigoration of her central being which she needed, and the effect of bringing the power of God to her central being brought back again her faith, her hope and her courage, and she became again a Christian woman who could look death and trial in the face. In many instances, when one invigorated the faith, the hope and the courage of a sufferer, one thereby wrought a great effect on the bodily condition of the patient. These he believed to be absolutely true, and he believed they lay at the basis of the success—so far as it went—and the prevalence of Christian Science; but when one went on to other points on Christian Science one was erecting a real truth—he said it deliberately—into a gigantic heresy. We had to learn from heresies to-day as we had learned from them in times past; there was not one single heresy that had ever existed that was not recalling the church to some forgotten truth; and every heresy lived upon the element of truth which it contained. What he wished to say to them as church workers was, "Keep the truth." The clergy ought to approach the bedsides of the sick with far more faith; they ought to pray for the recovery and lay hands on them with far more expectancy that they would recover; in doing their sick visiting they ought to look with far more hope for the recovery of the patients and not look alone to the preparation of the soul for death. The Bishop said he knew that there were present one or two who thought they had special gifts of healing. As their Bishop he put it to them that they must never try to exercise those gifts apart from the medical profession. It would be observed in the little story he had told that he never suggested that the woman should not undergo the operation which was so essential to her cure. He wished the medical profession to understand that the church regarded their healing art as a sacred thing. When he was ill he felt that the doctor who came to him was as much sent by Jesus Christ as the clergyman who called to visit him. As Christian ministers they ought to ask for and demand a right to have their place in the sick room allotted to them

by doctors. Of course, they must exercise tact and discretion, but it would be an ill-return for the honor the clergy were seeking to give the healing art if they were to be excluded from the sick rooms of either the wealthy or the poor. As might have been expected, on the strength of this utterance, the Bishop is claimed by the Christian Scientists to be one of themselves. If, they say, he had adopted the advice which he gave to pray for the recovery of the sick, he would have found, as they claimed to have found in hundreds of cases, that no operation was necessary; that faith alone was sufficient. This is an example of the evolution of dogma of which theologians speak, for in the book which is the Holy Writ of the Sect, the prophetess expressly excludes surgery from the scope of her treatment.

SPECIAL ARTICLE.

PRELIMINARY REPORT OF A SANITARY INVESTIGATION OF THE AIR OF THE NEW YORK RAPID TRANSIT SUBWAY COVERING THE MONTHS OF JULY-SEPTEMBER, INCLUSIVE.

BY GEORGE A. SOPER, PH.D.,
OF NEW YORK.

ALEXANDER E. ORR, Esq., President,
Board of Rapid Transit Railroad Commissioners,
320 Broadway, New York.

SIR: In order to convey a clear idea of the results so far obtained in my investigation of the sanitary condition of the air of the subway, it will be desirable first to consider briefly the scope of the investigation and then proceed directly to the conclusions. A more detailed account of the methods and data, and a full interpretation of them, will be reserved for my final report.

SCOPE OF THE INVESTIGATION.

The principal questions investigated have been the temperature, humidity, odor, bacteria and dust of the air of the subway. In studying each of these subjects the plan has been to obtain an accurate knowledge of, first, the conditions which actually exist; second, the cause of these conditions; third, what, if any, is the remedy required.

No attempt has been made to devise a comprehensive system of ventilation or cooling, this being understood to be beyond the scope of the service desired of me. My single expression of opinion in this direction has been that considerable benefit would result if provision could be made for larger and more direct openings from some of the subway stations to the outside air. In the present report this statement is repeated and supplemented by the opinion that the ultimate solution of the problem of a cool subway must lie in mechanical improvements which will prevent the production of the heat through a more economical employment of the power used to operate the road.

Experiments with fans and other ventilating devices, carried on under Mr. Rice's direction, have been observed by me, and their effects, as far as determinable by my analyses of the air, have been reported to him.

PRINCIPAL RESULTS OF THE INVESTIGATION.

Regarded as a whole, the results so far obtained contain little cause for alarm concerning the sanitary condition of the air of the subway. During the period of my observations the air has been renewed with sufficient frequency to assure an ample supply of oxygen and prevent the detection of unpleasant odors due to the large number of people who have been present in the subway. Odors from other causes have, however, occurred. The principal objection to the air has been its high temperature. The sanitary significance of the presence of black dust and of the bacteria which are contained in the air, however, still remains to be settled.

Heat and Humidity.—Throughout the period of this investigation, the subway has been decidedly warmer than the outside air. The average temperature for the day-time for the three months was, for the subway, 79.8° F., and for the air in the streets, 72.8° F.; difference, 7° F. The highest temperature observed in the subway was 90.6° F.

The hottest week was that of August 4 to 10, inclusive. The average daily temperature for the subway during this time was 83.1° F. For the outside air it was 73.2° F., the difference being 9.9° F. The maximum temperature observed in the subway this week was 88.5° F.; in the streets, 88.2° F.

The air of the subway has generally been less humid than the air of the streets. The average humidity for the three months was 56.2 per cent. The hottest week was also the most humid in the subway, the percentage of relative humidity having been for the week of August 4 to 10, 75.2 per cent.

The high temperature of the subway is due chiefly to the amount of power which, in one way or another, is converted into heat in operating the road. Most of it comes from the motors and friction brakes on the cars. Theoretically, it represents wasted energy. No remedy seems ready to hand for this trouble. It is a new difficulty in the operation of subways and is attributable to the large amount of electric power used on the road. The most hopeful direction to seek immediate relief from the heat lies, in my judgment, in the alteration of some of the stations, so that greater benefit will result from the combined ventilating effect produced by the movement of the trains and the breezes of the streets. Had it not been for the flushing action which was produced already in this way, the subway would undoubtedly have been much warmer last summer.

It would seem that the ultimate solution of the difficulty of overheating must lie in mechanical improvements which will prevent the production of so much heat through the great loss of energy which now occurs when the trains are stopped and started. A subject which seems worthy of consideration in this connection is the idea of regenerative control. Again, a lower speed from station to station would prevent the production of so much heat from the motors and brake shoes. This should be possible without sacrificing the actual running time, by improved means of loading and unloading the cars.

Ventilation.—There has been, on an average, far more fresh air in the subway than is necessary to satisfy the standards established by sanitary authorities for theaters, halls and other places of assembly. The air in the cars has been somewhat less satisfactory, depending on the amount of crowding. The test employed to measure the amount of ventilation has been the estimation of carbon dioxide present by the method of Pettenkofer. The average of 721 analyses gave for the air of the subway 4.58, and for the air of the streets 3.45 parts of carbon dioxide per 10,000 volumes of air, the difference being 1.13. The largest amount found on any occasion in the subway was 7.81.

There was so slight a difference between the amount of oxygen present in the subway and outside air that the employment of this test as a routine procedure was discontinued after about eighty analyses had been made. The difference between the smallest amount of oxygen found in the subway and the greatest amount found out of doors was .7 per cent. The average for the subway was 20.6 per cent., and for the outside air, 20.71 per cent.

The frequency with which the air is changed in the subway is attributable, in my view, to the currents set up by the action of the trains and breezes above ground coming through stairways and other openings to the stations and streets.

Odors.—The air of the subway has at nearly all times and places possessed a noticeable odor. There is not, in reality, a single odor, but a number of them. The odors of the subway are attributable principally to conditions due to the newness of the structure and its equipment, and are largely susceptible of elimination. They are traceable principally to volatile substances given off by paints, cements, lubricating oil, hot boxes and a chemical deodorant used in the toilet rooms. The presence in the air of black dust is also accountable for a part of what is generally taken to be odor.

Dust.—The amount and character of the black dust in the subway is a matter of considerable importance. Chemical analysis of this dust shows that it contains 62.78 per cent. of metallic iron. Microscopic analysis shows that the particles range from fragments which can almost be seen with the naked eyes to pieces less than 1-25,000 of an inch in diameter. Most of this pulverized iron is due to the grinding up of brake shoes, the daily loss in weight of which is surprisingly large. Dust of the same kind has made at least one other subway dark and grimy in appearance. In another case, the gradual accumulation of iron dust is said to have seriously interfered with the insulation of the electric current.

It is important, in my view, to take notice of the presence of this iron dust both because of the possibility of its affecting the health of persons who must continually breathe it and on account of the black stain which it imparts to the light-colored portions of the subway structure, cars, booths and other furniture, and the persons of the employees and passengers.

Because of the presence of about 1 per cent. of oil which the dust contains, it gains secure lodgment upon all surfaces, and, being of a black color, forms an unsightly smudge which is difficult to remove. An amount of this dust which is too small to be weighed with accuracy is capable of producing a black mark upon white linen which can be seen at a distance of twenty feet. If this linen is moistened with perspiration or water, a yellow stain is produced. Straw hats and the light-colored garments worn by passengers of both sexes in summer are, therefore, liable to be soiled by coming in contact with even small accumulations of the dust. The actual weight of black dust in a cubic foot of the atmosphere at any time is slight. It would undoubtedly be greater if the ventilation of the subway was any less effective. Mainly because of the possibility that it may be injurious to health when breathed continually through long periods of time, the subject of dust and its prevention is now receiving my special attention. It would appear that in order to prevent the formation of the dust, a less heavy use of the friction brake would be required.

Bacteria.—There have generally been fewer bacteria in the air of the subway than in the air of the streets, but occasionally there have been more. A study of the results of 2,600 tests shows that the average number of bacteria which were deposited per minute upon a square foot of surface and were subsequently capable of growing at the temperature of the human body was for the subway 750, and for the air of the streets 1,200. Although it is not improbable that the bacteria in the subway belong, for the most part, to the same species as those above ground, the study of this subject has not yet reached a point which will justify a positive statement concerning its sanitary significance.

Other Sanitary Observations.—A number of sanitary observations of less importance than the foregoing have been made. As a result of these, the three following suggestions are respectfully submitted as especially worthy of your consideration at the present time.

1. That the ballast of the roadbed which has become saturated with oil from the machinery of the cars and has accumulated a quantity of small refuse from the stations, and passengers should be renewed at the stations, or better, replaced with a smooth concrete surface which can easily be cleaned. In order to protect the roadbed against oil in the future, the use of larger drip-pans beneath the cars and more frequent inspections are suggested.

2. That the stations be cleaned and cared for in a more systematic and thorough manner. The suggestions made by the Board of Health with respect to this matter are strongly recommended for adoption, except as to the use of disinfectants; with strict cleanliness, these should not, in my judgment, be necessary. A copy of the Board of Health suggestions is herewith appended.

3. That the toilet rooms be equipped with suitable means of ventilation and that they be kept in a more strictly sanitary condition.

Respectfully submitted,

October 19, 1905.

SOCIETY PROCEEDINGS.

NEW YORK ACADEMY OF MEDICINE.

ORTHOPEDIC SECTION.

Regular Meeting held October 17, 1905.

The President, Homer Gibney, M.D., in the Chair.

Ulnar Nerve Suture.—Dr. Hibbs presented a boy ten years old, admitted to the hospital February 21, this year, giving a history of having had some injury, a fracture of the forearm, following which he had an extensive suppurative process causing what seemed then a paralysis of the ulnar nerve—typical claw hand, loss of power in the extensors. The ulnar nerve was cut down upon, an extensive cicatrix was encountered which was evidently the cause of the paralysis. That operation was performed March 8. The neurologists at the hospital noticed immediately after operation (March 12) changes in the color of the hand and evidence of improved circlulation and sensation, and since that time it has seemed to me, as well, that the boy is steadily improving. Dr. Hibbs would like suggestions as to further treatment, or what is thought of the prognosis. He has a second child with a very similar lesion, due evidently to the plaster having been applied too tightly after fracture of the arm.

Multiple Exostoses.—The second case may not be of great interest, but it is rather out of the ordinary. This little fellow was admitted to the hospital a few days ago; aged thirteen years. Multiple exostoses—numerous bony tumors appear extensively over the body, an enormous one on his scapula, which was removed seven or eight years ago but reappeared, and now involves the whole scapula. It is interesting for two or three reasons—first, because of the age, and because there are so many of the tumors. Then the case is interesting on account of the one removed and subsequent recurrence. A very good X-ray picture of it was taken, which was instructive in showing the very spongy character of the bone. The speaker had supposed, probably incorrectly, that they were very hard and had much the character of bone.

Dr. Henry W. Frauenthal showed pictures of a case of gonorrheal infection of the ankles, and of a case in which both knees, both hips, both ankles and one elbow were involved—a mixed infection of probable gonorrheal origin in which he attempted to correct the deformity under an anesthetic, and without any great physical effort this was partially accomplished. He was put in plaster and an acute process was set up—he had no temperature for twenty-four hours—then endopericarditis with a temperature of 108½ and died.

Periostitis of Tibia.—Dr. Myers presented a case of a little colored boy a year and nine months old when he came into the hospital in February, 1905; could obtain no history at all. He was in very good condition at the time, except for the acute condition, and that was very acute and extensive periostitis of the tibia. Very weak pulse, and septic. This thing had been of very short duration; the people in charge said only two or three days. It was opened from one end to the other with a discharge of thick yellow pus, culture showing pure staphylococcus. Temperature 103° or 104° F. at that time, and Dr. Phelps' method was used, raking the whole area with pure carbolic acid for about twenty seconds, wiping out with absolute alchohol, afterward with iodoform. Two days later the temperature fell. Abscess on right humerus above and behind the external condyle. The house surgeon attended to it. The abscess was opened and the same kind of pus evacuated. When the child was convalescent, the sinus in the leg was still discharging—a sinus at elbow discharging a little, but enough to warrant operation. He attacked that wound and found a cavity in the humerus about the size of an ordinary marble and that the lower and upper ends of the divided nerve had enlarged to twice their size and were adherent to the periosteum on either side of abscess, so that perhaps there was one-half inch separtion of the two ends. The bulbous ends were so markedly pathological that those were cut off and that left them separated about one and one-half inch. The speaker said he thought he could get a branch of the artery and bridge over the gap, but found he could get the ends together and suture them, and then the abscess discharging almost at that point was an obstacle, and by separating the nerve from the abscess and putting in tissue and packing the abscess off from the nerve, and putting plaster-of-Paris splint on to hold the arm flexed and bound down to the trunk so it would have no motion at all, this was overcome. The splint was kept on from May until the latter part of July when it was removed. At that time the child could hold his hand extended but could not hyperextend it. Returning from vacation found that, as now, he apparently uses one hand as well as the other. At the first examination he had total wrist drop and absence of sensation. A couple of pieces of bone had been taken out. The shaft was left in the splint until more or less healing took place, when it was removed.

Clubfoot.—Dr. A. B. Judson reported a case as follows: A few years ago I saw a patient, a girl of nineteen years, who complained of inability to walk from a painful condition of the left knee. I found evidences of infantile paralysis of the left foot and an inclination of that foot to varus. As we have pain in the stomach from Potts' disease and pain in the knee from hip disease, why not pain in the knees from clubfoot? But I found a very good logical reason for connecting the pain in the knee with the deformity of the foot. She had grown up in the habit of walking with the limb considerably abducted in order to bring the sole instead of the outer border of the foot to the ground. In this way she had unwittingly avoided the customary callus and had escaped having rigid equinovarus. As she grew to be a large and very stout girl her increasing weight, falling on an abducted limb, had disabled her by producing a painful genu-valgum, for which she was compelled to apply for relief. I found a rather short tendo Achilles, the left calf one inch smaller than the right and a small callus on the outer border near the little toe. It was with difficulty that she was made to see that the trouble was in the foot and not in the knee. After a time, however, she wore a clubfoot brace, which directed the sole of the foot squarely to the ground. This improved her gait at once and led her to give up abducting the limb, and of course the trouble at the knee disappeared. This is the only really unusual feature in this case. If she could have followed advice and worn the brace as a curative appliance the deformity might have been removed and the brace might have been laid aside. There is little doubt that this could have been done. The condition was very far from that of rigid or inveterate clubfoot. The parts were still flexible, as her peculiar manner of walking had brought her weight on the foot in a nearly normal direction. But the opportunity was not given to overcorrect the position and reduce the deformity. The sequel is that she is now thirty-two years old, the mother of an increasing family, and will continue to wear the brace, which, as is evident from this duplicate, is heavy (2½ pounds) and apparently an inconvenient thing to carry. But she is glad to have it, and says she cannot walk without it. The brace gives her a strong gait, almost free from defect. The case reminds one of the difference between wearing a brace with a therapeutic end in view and wearing one as a purely prosthetic apparatus.

Dr. H. W. Frauenthal, in the discussion on Dr. Hibbs' case of ulnar nerve suture, said he thought a method in use at the Massachusetts General in educating partially paralyzed children might be of use in Dr. Hibbs' case—that is, have the child concentrate his mind and touch various objects at the beat of a clock or of an instrument that beats time for instrumental music.

Dr. Myers said, on Dr. Hibbs' case of multiple exostoses, that it was very interesting and seemed to him one of the few instances he had seen in which the child could improve by operative procedure. He thought the shoulder tumor could be removed with very great benefit. Whereas the function of the arm is not very much interfered with, the deformity is marked. He had not examined the knees very closely, but he thought their function was not interfered with.

Dr. Nathan said he would like to call attention to the fact that the cartilaginous exostoses in this case

closely follow the epiphyseal line, showing they come from cartilage—are originally a disease of the epiphyses—growing cartilage.

Dr. Ashley said he had five or six cases in the same family—the grandmother, the mother and her two children and a brother. He spoke of this in the meeting of the Association at Boston, where a paper was offered by Dr. Young, of Philadelphia. The grandmother had one exostosis on the right ulnar. The arm was very much shortened, but useful.

Dr. Jaeger said one point not mentioned was the bowing of the ulnar that seems to take place, and shortening of the arm. The case Dr. Ashley spoke of attracted his attention because of the short arm, when he was under treatment at the Vanderbilt.

Dr. Hibbs said that in regard to the exostoses, his idea was to remove them one at a time and get rid of as many as were very conspicuous or interfering in any way with walking.

Osteo-arthritis Deformans.—Dr. Frauenthal exhibited this case. Affection of both hips, two years' standing. Dr. Homer Gibney said that the case seemed to him to be one of the group described by Goldthwaite, of Boston, slipping backward or forward of sacro-iliac synchondrosis.

Dr. Nathan said the trochanter was above Nelaton's line, no limitation in flexion or extension, some in rotation. A process coming on in the head of the femur would not have that effect. One would imagine from the symptoms that she had osteo-arthritis deformans of the hip, rather than infection.

Clubfoot.—Dr. Judson replied to Mr. Myers' question as to whether there was any visible change in the knee, saying he examined it, and found nothing objective about it except that it was a case of knock-knee and so painful she could hardly walk. It is a very interesting question Dr. Myers raised, whether there may not be some nervous connection between deformities of clubfoot and important joints like the knee. Perhaps we could expect to have pain in the knee from clubfoot as in hip disease. Dr. Myers said, in answer to Dr. Judson's question, that he did not think the condition parallel with hip disease. As he understood it, the pain in the knee of hip disease was due to irritation of the nerve, but in this case he thought it due to straining of the joint ligaments bearing the unusual part of the cartilage, as in flatfoot.

Dr. Ashley exhibited to the Section a series of celluloid jackets and corsets, and foot plates, claiming durability and lightness as commendable features.

OBSTETRICAL SOCIETY OF PHILADELPHIA.

Stated Meeting, held Thursday, September 7, 1905.

The President, Wilmer Krusen, M.D., in the Chair.

Report of Gynecological and Obstetrical Cases.—Dr. Frank C. Hammond reported the following cases of this character: *Case I.*—Carcinoma of the cervix localized in the cervical canal at the internal os associated with multiple fibroids in a multipara, fifty-one years of age. Panhysterectomy was done and recovery ensued. *Case II.*—Puerperal sepsis. The attending physician had allowed a lapse of four days before emptying the bladder. The bladder was so distended that it was impossible to introduce the examining fingers into the vagina until the bladder was half emptied by catheter. The patient passed into coma, a large part of the placenta was in the uterus, and death followed. *Case III.*—Hypertrophic elongation of the cervix in a single girl, aged nineteen years. The cervix was amputated, followed by relief of symptoms. *Case IV.*—Extensive lacerations of vulva and anterior vaginal wall, without injury to urethra. The condition was the result of falling astride the corner of a step. Immediate suture was employed. *Case V.*—Severe mercurialism due to excessive use of very strong bichloride vaginal douches in the hope of producing an abortion. The uterus was curetted for incomplete abortion. During the first six days after symptoms of mercurialism appeared only five ounces of urine were secreted, secured by catheterization. *Case VI.*—Primipara forty-three years of age. The labor and puerperium were normal. *Case VII.*—Displacement of the uterus anteriorly above the symphysis due to a marked fecal impaction in the rectum, but there was no obstruction of the bowel. The fecal mass was broken up with the finger and dislodged. *Case VIII.*—Cleft palate, hard and soft, without harelip. This was the second child in the same family similarly afflicted. *Case IX.*—A case of supernumerary digits. The anomaly could be traced back for three generations on the maternal side.

Dr. J. W. West emphasized the importance in the treatment of obstetrical cases, when dependent upon untrained nurses, of giving careful instructions about all douches and enemata employed. He referred to two cases in which untrained nurses had substituted 1-1,000 bichloride solution for soap and water in rectal injections. Although there was ultimate recovery, one of the women was so desperately ill that life was despaired of.

Aseptic Management of the Umbilical Cord.—Dr. J. Thompson Schell said that in this aseptic era it seemed passing strange that so little attention had been paid to the aseptic management of the umbilical stump. Good results, he said, were reported by Dr. Dickinson, of Brooklyn, and Dr. C. S. Bacon, of Chicago, and the method advocated was the same as advised by Dr. Schell, as follows: Upon the delivery of the child he placed a hemostat on the cord three inches from the abdominal wall and a second hemostat about one inch from the first and the cord was severed between. The child was then laid to one side wrapped in its receiving blanket while the placenta was delivered and the mother attended to. The cord was afterward amputated by grasping the hemostatic forceps in one hand and with a sharp pointed scissors the cord was severed at its skin-amniotic junction and the amniotic covering and Wharton's jelly were then separated from the vessels of the cord by stripping them back with a piece of gauze in a direction away from the abdominal wall. The vessels were then ligated with a piece of No. 0 sterile catgut and the cord was dusted with an antiseptic dusting powder. The baby, he said, was not placed in the tub for about ten days.

Dr. Frank C. Hammond asked what relationship there was between this method of tying the cord and the occurrence of umbilical hernia in comparison to the old method.

Dr. Charles S. Barnes inquired whether Dr. Schell had had retraction or hemorrhage in any case from cutting the cord; also whether, after incision of the vessels, they would retract and bleed, and whether he would be able to catch them?

Dr. Wilmer Krusen asked whether the author had seen frightful hemorrhage at times within twelve hours of ligation of the cord?

Dr. Schell, in closing, said he had never had a case of umbilical hernia in babies in which the cord had been tied off in the manner indicated. The hernias he had seen were in children who had been sick with marasmus, pneumonia, or some illness causing them

to cry or strain, which would probably have produced hernia regardless of the method of treating the cord. He does not think he has seen as many hernias with this method as with the older one. He felt that the ring was stronger when clean than when infected. He has nipped the vessels several times, but without encountering any trouble. The bleeding was so slight that a ligature was placed about them merely as a precautionary measure. Answering Dr. Krusen, he had never seen hemorrhage which he would call frightful. He thought there was less danger of hemorrhage with a clean amputation than with an infected slough. The only bad case of hemorrhage observed by him occurred on the eighth day. In this case there was a polypoid-like growth on the end of the stump from which he believed the vessels bled. Although the child recovered, there was later symptoms of general infection. He believed that many obscure illnesses in young infants were the result of an infected stump. Child-bed fever in the mother, he thought, might also be traced to the same source.

NEW YORK NEUROLOGICAL SOCIETY.

Stated Meeting, held Octber 3, 1905.

The Vice-President, Dr. J. Arthur Booth, M.D., in the Chair.

Types of Hysterical Insanity.—Dr. Robert C. Woodman read this paper. He said his paper was the outcome of a symptomatic study of the insanities during the past two and a half years. Cases not clearly belonging to any well recognized insane type had been especially scrutinized, and some had been found to show hysterical stigmata, while other atypical cases without stigmata presented mental symptoms very similar to those of the hysterics. His observation and study had shown that there were among the committed insane a considerable number of hysterics, and those cases were, in many instances, violently insane for considerable periods. Any medical classification that ignored that fact was incomplete, and concealed important clinical distinctions. The recognition that some hysterics, as such, were insane, helped to bridge the gap between mental diseases and general medicine, and made more easy the conception of other insanities as thinking disorders; as functional in the same sense, as ordinary thought was functional. Dr. Woodman's paper, in summary, analyzed the symptoms that insane hysterics presented. He found the origin of the attack in emotional experiences; it pursued an episodic course; there was an absence of marked disturbance in the stream of thought, excepting in dazed and stuporous states; there was a natural point of view concerning indifferent topics; often periodic amnesia; a loss of the ability to do mental or physical work, but with little or no motor retardation, and, on the emotional side, usually anxiety and fear. Cases were quoted in which the anxious depression preceded the hysterical stigmata, notably in one involutional case, and the question of a close relation of hysteria to anxious depressions at any time of life was raised, especially as to its relationship to recurrent melancholic attacks without manic alternations. Some non-conclusive evidence on the relation of hysteria and dementia praecox was submitted, and some other symptom complexes which hysteria had been found to take were referred to.

Dr. Adolf Meyer said that so far as he knew, Dr. Woodman's paper was the most documented presentation of this subject in the English language. The hysterical insanities were a rather interesting group from a theoretical point of view, inasmuch as they presented one of the clearest types of mental disorder in which the psychogenic element was uppermost. Their recognition was also of decided importance from a prognostic and therapeutic point of view. Quite a large number of the cases—indeed, the majority of the attacks which rank plainly as insanities, were, however, of a rather transitory character, and for that reason, perhaps, the need of a detailed knowledge of the disorders for their treatment had thus far aroused comparatively little interest. That phase of the subject must of necessity be preceded by a study, in broad lines, of the symptom-complex, such as Dr. Woodman's paper had given in his very interesting group of cases. While in some of these cases there was a distinct history of hysteria, with the hysterical stigmata well marked, and the whole mechanism of the disease characteristically hysterical, there were others in which the symptom-complex seemed to coexist with well-recognized forms of insanity, such as dementia praecox and the manic-depressive type, as well as involutional melancholia, and his suggestion concerning the latter is certainly worth attention, but under those conditions it was usually apparent that it was subordinate to the more decisive phenomena of the major affection. Some points which had of late been especially touched upon in the literature of hysteria, namely, the Ganser complex, had not been especially considered by Dr. Woodman, and perhaps with some justification, as it might well be regarded as an established fact of clinical investigation, when it goes beyond the scope of the analogous states actually described. Probably the best presentation of these cases was that found in the report of Ricklin, published in the *Psychiatrische Wochenschrift* and reviewed in the *Psychological Bulletin*, of July, 1905.

Dr. Arthur C. Brush said that if we accepted the old idea that hysteria was a mental phenomenon that was to a greater or lesser extent met with in the entire human race, it would be difficult to see how Dr. Woodman could differentiate between these so-called hysterical insanities and the true insanities. That the former were nothing but exaggerations of what was normally present in the human being was undoubtedly true, for even sane people had at times hallucinations and delusions and automatic dream states. The sudden onset of the symptoms in these cases of so-called hysterical insanity, and the sudden recovery from them, would sharply distinguish them from cases of true insanity, as would also the lack of mental deterioration. Dr. Brush said he did not wish to be understood from this as questioning the propriety of proper restraint in dealing with cases of so-called hysterical insanity, but until we could clearly define insanity and hysteria, he did not think we could accept the latter as a form of insanity.

Dr. William M. Leszynsky said that Dr. Woodman, in his paper, had mentioned slight contraction of the visual field as being one of the symptoms in the cases cited, and he asked how the visual field had been tested; whether by the perimeter or by less accurate methods? As a rule it was exceedingly difficult or impossible in the majority of the insane to make a satisfactory or accurate determination of the visual field, for this required, on the part of the patient, persistent concentration of attention, and considerable judgment. It was possible, however, in some cases to decide as to hemianopsia or marked concentric contraction.

Dr. George W. Jacoby said he considered the contribution of Dr. Woodman of great value, as it was an effort toward systematizing these cases of hysterical insanity so that they could be recognized from their clinical aspects. At the same time, he was rather surprised to learn that this class of cases was considered in any way unusual, and he could only explain this on the ground that they were regarded from a different standpoint by the psychiatrist and alienist in contradistinction to that of the neurologist. The latter regarded many of the somatic features of hysteria as distinct delusions, and if that interpretation was correct, then it was only one step further to the development of distinct insanity. In the recognition of these cases of so-called hysterical insanity it would be necessary to study the previous history of the patient, and exclude the various other forms of insanity, such as epileptiform insanity, delirium of various kinds, catatonia, etc. Given, a case in which there was a previous history of hysteria, together with the course and clinical features pointed out by Dr. Woodman, and the diagnosis of hysterical insanity could in time be made, but whether a diagnosis could be made from the course alone, without such a previous history of hysteria, was questionable. The value of such an early diagnosis lay chiefly in the prognosis and treatment, but the speaker said it would be a decided mistake to believe that all cases of hysterical insanity were of short duration. He recalled instances where recovery was delayed for two or three years. Dr. Jacoby said he agreed with Dr. Leszynsky that it would be exceedingly difficult to base the diagnosis of hysteria upon somatic symptoms, such as restriction of the visual field, hemianesthesia, etc., because patients of that class were usually very unreliable in their statements, and susceptible to suggestions of all kinds.

Dr. Edward D. Fisher said he certainly would draw a distinction between cases of mental disease occurring in those who gave a previous history of hysteria and in those who gave no such history. The former, as a rule, did not run the typical course observed in melancholia or in so-called mania, using the older terms, but they might assume more of the paranoic form. The duration of these hysterical insanities, as Dr. Jacoby had said, was often quite prolonged. He recalled cases of this kind where restraint became necessary on account of the development of suicidal or homicidal tendencies, and where some mental instability persisted for some time after the disappearance of the acute symptoms. Dr. Fisher thought the profession was justified in classifying certain forms of insanity as hysterical, as this term clearly explained the nature of the case. While the term was perhaps not purely scientific, it was a true representation of a certain mental state occurring only in those who had the stigmata of hysteria. He was inclined to regard the term hysterical insanity as a more or less valuable one, as really representing an entity, if not a well defined one.

Dr. William B. Noyes said that within the last six months he had seen two cases where the diagnosis between hysterical insanity and dementia præcox or some other psychosis had been a matter of careful consideration. One of these was a woman, aged thirty, who had sustained a fall and had been treated in a hospital for contusion of the back. Two months later she suffered from attacks of unconsciousness, coma and convulsions. four or five times, lasting in all about five days. There was no lesion of the kidneys. She was again treated in the hospital and had occasional auditory hallucinations. When he examined her she had tremors, increased knee-jerks and isolated areas of absolute analgesia and anesthesia. She showed great weakness in walking. The diagnosis of traumatic hysteria seemed plausible. During the following days she became excited and at times almost maniacal, at other times much depressed. At a subsequent examination she had no anesthesia but an area of hyperesthesia in the middle of the back. Mentally she was silly, but neither depressed nor excited. A day or two later she was sent to an insane asylum, having again become excited. Notwithstanding the fact that the subsequent history of the case may indicate a condition of dementia or some other definite psychosis, the name of hysterical insanity covers all the clinical data at present obtainable. The other case was that of a young married woman, aged twenty-five years. She resided with her husband's relatives, who were exceedingly neurotic. She had nursed a case of typhoid fever just before her marriage. Before the present illness she had suffered from three mild attacks of hysteria, with cramp-like symptoms, and much prostration, but no special mental disorder. When Dr. Noyes saw her, last spring, she had a typical attack of hysteria major, starting with convulsions and coma. There were no evidences of uremia. The convulsions were followed by a dream-like condition and semi-coma, failure to recognize her friends and transitory hallucinations. Her condition gradually improved, and she was well in three weeks. There were no areas of anesthesia in the brief examination the speaker was able to make, nor any well defined hysterical stigmata, excepting the peculiar conformation of her face. In her case the mental symptoms were so severe for about three weeks that no one could have distinguished between hysteria and developing dementia præcox. The fact of several years of mild or grave hysteria was positive; the transitory nature of the mental disturbance was against dementia præcox.

Dr. J. Arthur Booth, after referring to the several interesting types of so-called hysterical insanity illustrated in Dr. Woodman's paper, said that the type in which there were convulsive seizures and hemianesthesia, with narrowing of the visual field and marked emotional disturbances, was not difficult to recognize. In some of the other types referred to, however, the diagnosis of hysterical insanity should be made with great circumspection; for, just as in many organic diseases of the nervous system hysterical disturbances were not infrequently observed, so in certain psychoses, other than the one under consideration, emotional disturbances occur which would not justify one in grouping these cases as types of hysterical insanity.

Dr. Woodman, in closing, said he thought Dr. Jacoby had touched upon an exceedingly important point in the ultimate relationship of these cases in calling attention to the fact that the neurologist regarded many of the somatic features of hysteria as distinct delusions. The speaker believed that in hysteria both the physical symptoms and such mental disturbances as were regarded as insane left a common basis in a characteristic thought disorder. He also agreed with what had been said regarding the long duration of some of these cases. He recalled one case where the symptoms persisted for three years before recovery took place, and there was another case in the hospital that had been there about

three years. In other cases, however, the recovery had been very prompt. In reply to Dr. Leszynsky, the speaker said that by slight contractions of the visual field he meant practically that the sight was limited to an area within 60 degrees. Some of these patients were examined by rough tests, and others with the perimeter, which it was possible to employ in some instances. In others only rough tests could be made.

Dr. Woodman said he did not wish to be understood as presenting the provisional classification of the cases he had reported in his paper as a classification of hysterical insanity. He simply used these headings as guide posts to give some idea of where, among the many groups of insanities, we might look for the hysterical type.

On Flight of Ideas.—Dr. August Hoch, of Bloomingdale, read this paper. After a review of various theories regarding this symptom it was pointed out that it is impossible to explain either the normal train of thought or that of flight of ideas otherwise than by the recognition of a force by which the train of thought is directed; a force which is active in the normal train of thought, but diminished or absent in the flight of ideas. This force we call with Liepmann "attention," recognizing that this is a somewhat restricted use of this term. In this sense, then, flight of ideas is an attention disorder. Such a conception alone takes account of the symptom fully. Because a study of the cases shows us that the peculiarity of the train of thought, namely, its being constantly deflected into the sidetracks is not the only manifestation of the attention disorder, but that the latter has two components, viz., an emissive and a receptive one. The emissive component, that which is usually termed flight of ideas, is best characterized by the statement that the train of thought follows the path of least resistance. It is not enough to say that it merely follows the laws of association, because emotional factors influence it strongly. The modifications which this emissive component may present may be produced, in addition to emotional factors, first, by the intellectual development of the patient, since with some persons logical trains of thought are more habitual than with others, and consequently some may represent a path of least resistance. Here may also be mentioned the observation that patients with pronounced flight of ideas may become much more coherent when they talk about subjects which are supplied to them or about subjects or incidents which made a special impression on them; secondly, by that which Krapelin has called thinking disorder, and which may be associated with the attention disorder. The modification through emotional influences is best shown in the cases in which the flight of ideas is held together, as it were, by a depressive emotion or by anger. The receptive component shows itself in the inability on the part of the patient to quietly combine simultaneous or successive data of observation into a conclusion, so far as this is an effort. Conclusions in regard to facts and situations which present themselves to such patients are not drawn from all the data, which are then balanced with former experiences, but merely from a few, while at the same time the subjective factor predominates; or, in other words, the conclusions follow the path of least resistance. As a result, the identity of persons is often mistaken, the grasp on the surroundings is faulty, and delusions are formed. The latter may be very stable, and indeed may dominate the clinical picture. The receptive component may also be recognized by tests (reading tests). The patients are made to read paragraphs of graded complexity and asked to give the gist. The recognition of this receptive component, which has never been sufficiently emphasized, explains, therefore, various secondary symptoms associated with more marked degrees of flight of ideas. And when, through certain modifications, the emissive component of the attention disorder is obscured, the analysis of the receptive component may be of great diagnostic value. This sort of attention disorder is a common symptom in various psychoses. Deliria and senile dementia were mentioned as examples. In both of these conditions we may find trains of thought identical with flight, though less marked, and submerged, as it were, by the specific symptoms belonging to these states; namely in the deliria, the constant tendency towards lower levels of consciousness; in senile dementia the diminished mental responsiveness, with its sequels. It may be added that both these conditions have been called attention disorders. But they are different from the attention disorder described here and only give rise to it as an incidental manifestation. In its pure form, however, we find it in manic-depressive insanity, where it presents itself as an essentially dynamic disorder. Some of the points were illustrated by clinical descriptions.

Dr. Charles L. Dana, said that Dr. Hoch's paper was a very clear and important contribution to this subject. He thought perhaps the author had laid too much stress upon the term "flight of ideas," as though that term represented some particular and definite psychical phenomenon which it was the duty of psychologists to analyze. Flight of ideas was, however, a characteristic syndrome, and the speaker's demonstration that it was essentially an attention disorder was very convincing.

Dr. Adolf Meyer said the recognition of the meaning of the flight of ideas as attention disorders was of great importance in the understanding of certain mental conditions. Without a realization of their nature the diagnosis of such cases as the ones reported would be attended with considerable difficulty, especially in those instances where the existence and persistence of delusions might suggest otherwise a condition of grave character. That Aschaffenburg's explanation did not cover the ground was certain, yet it would seem that the motor factor in the production of alliterations need not be ruled out, as it no doubt helped to explain part of the effect of the attention disorders as the practically much more important side insisted upon by Dr. Hoch, explained other results.

Dr. Fisher said that all thought required attention, and with disordered attention there was this rapid succession of ideas or flight of ideas to which Dr. Hoch had referred. The association of ideas made the succession rapid or slow, as the case might be. Certain ideas will call up others, depending on the knowledge or experience of the person along certain lines, and the flight of ideas is apt to be more rapid without the control of the will. When there is a lack of attention there is a lack of will power and a rapid ebullition of ideas. On the receptive side this is more or less the same. The person might receive a hundred impressions, and his attention not being fixed, he might not be able to put them in their proper relation or properly associate them because they did not remain long enough in his consciousness. Without full consciousnes there was never a

true appreciation of what was perceived, and there was apt to be not only a succession of ideas, but an incoherence of ideas, because consciousnes was not in control.

Dr. Smith Ely Jelliffe said that the points which Dr. Hoch had accented in his paper deserved more attention than they had been in the habit of receiving, at least from workers in psychiatry in this country. He felt that what Dr. Hoch had done was to point out that the disorders of the function of attention were capable of just as definite and distinct analyses as the anomalies in the less complex physical reactions of the body, and that a clearly outlined symptomatology was possible and might be pathognomic of essentially different psychic anomalies. He felt that there was need of greater precision in the study of these disorders of attention, both from the emissive and from the receptive side, as Dr. Hoch had already emphasized, and he said that in the study of drug action assistance might be derived in unraveling this faculty of attention, more particularly its disorders from both the emissive and the receptive sides; thus, the well-known action of belladonna on the emissive side and that of cannabis indica on the receptive side. In the latter, as is well known, anamolies of attention are brought about which might be closely comparable from the standpoint of analogy, at least, with those spoken of by Dr. Hoch as occurring in forms of manic depressive insanity. It is not at all unusual to encounter in cannabis delirium the characteristic failure to recognize objects, and even more striking anomalies of mistaken identity and false judgment from defects on the receptive side of attention, and, finally, the development of hallucinatory and delusional states closely comparable to those spoken of in the discussion.

Dr. Woodman said he had hitherto been inclined to underestimate the importance of the receptive side of the flight of ideas. He mentioned a case of long-standing manic depressive insanity where the patient was able to talk well and coherently, but failed in the reading test. He was unable to explain a simple paragraph without interjecting his own ideas to the exclusion of those of the writer.

BOOK REVIEWS.

A PRACTICAL TREATISE ON SEXUAL DISORDERS OF THE MALE AND FEMALE. By ROBERT W. TAYLOR, A.M., M.D., formerly Clinical Professor of Genito-Urinary Diseases at the College of Physicians and Surgeons (Columbia University), New York; Consulting Genito-Urinary Surgeon to Bellevue and to the City (Charity) Hospital, New York. Third Edition, thoroughly revised. Lea Brothers & Company, New York and Philadelphia.

DR. TAYLOR'S book is so well known to the profession as to need no introduction from a reviewer. Already in its third edition, it deserves the popularity that it has earned. In the present edition the illustrations are even better than before, more numerous and more really illustrative. There are certain additions to the chapter on the sexual diseases of women that makes the volume more practically valuable, and to the chapter on the anatomy and physiology of the sexual apparatus that brings it more thoroughly up to date. We feel sure that this present edition will continue to maintain Dr. Taylor's reputation as a very practical teacher, yet at the same time a thoroughly scientific writer.

THE ELEMENTS OF HOMEOPATHIC THEORY, MATERIA MEDICA, PRACTICE AND PHARMACY. Compiled and arranged from homeopathic text-books, by Dr. F. A. BOERICKE and E. P. ANSHÜTZ. Boericke & Tafel, Philadelphia.

THIS very small book gives a brief talk on the origin of homeopathy, on the methods of "proving" drugs by recording personal feelings after a drug has been taken, on dosage and potency and on symptomatology. Then follows a list of homeopathic medical works, and a concise but expressive talk on the pharmacy of the cult, which is pretty much as Hahnemann left it: thus, in making the higher "potencies" or "dilutions," one must "pour into a well-corked bottle, hold clinched in the fist and pound on a hair-stuffed base, twelve powerful strokes." The different diseases in alphabetical order are next considered as to their therapeutics, and finally the individual drugs with reference to their aplication in medicine. We should think that the homeopathic student would be very glad to have such a book.

BOOKS RECEIVED.

PRINCIPLES OF HEREDITY. By Dr. G. A. Reid. 8vo, 359 pages. E. P. Dutton, New York.

THE RHEUMATIC DISEASES. By Dr. J. Odery Symes. 12mo, 233 pages. Illustrated. John Lane, London and New York.

TEXT BOOK OF PHYSIOLOGICAL CHEMISTRY. By Dr. John H. Long. 8vo, 424 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

HUMAN PHYSIOLOGY. By Dr. J. H. Raymond. Third edition. 8vo, 687 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

SYSTEM OF PHYSIOLOGIC THERAPEUTICS. By Dr. S. S. Cohen. Volume X. 8vo, 479 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

PRACTICE OF MEDICINE. By Dr. Wm. Osler. 8vo, 1143 pages. Illustrated. Sixth edition. D. Appleton & Company, New York and London.

DIETETICS FOR NURSES. By Drs. J. Friedenwald and J. Ruhräh. 12mo, 363 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

DISEASES OF THE SKIN. By G. T. Jackson. Fifth edition. 12mo, 676 pages. Illustrated. Lea Brothers & Company, Philadelphia and New York.

THE TREATMENT OF FRACTURES. By Dr. C. L. Scudder. Fifth edition. 8vo, 563 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.

EXERCISES IN PRACTICAL PHYSIOLOGY. By Dr. Augustus D. Waller. Part II. 8vo, 79 pages. Illustrated. Longmans, Green & Co., London, New York and Bombay.

THERAPEUTICS AND PRINCIPLES OF PRACTICE. By Dr. H. C. Wood. Twelfth edition. 8vo, 907 pages. Illustrated. J. B. Lippincott Company, Philadelphia and New York.

ORGANIC MATERIA MEDICA AND PHARMACOGNOSY. By Drs. L. E. Sayre and W. C. Stevens. Third edition. 8vo, 692 pages. Illustrated. P. Blakiston's Son & Co., Philadelphia.

DISEASES OF THE ANUS AND RECTUM. By Drs. D. H. Goodsall and W. Ernest Miles. 8vo, 271 pages. Illustrated. Longmans, Green & Co., London, New York and Bombay.

KIDNEY AND SPLEEN AND HEMORRHAGIC DIATHESIS. By Drs. H. Senator and M. Litten. Edited by Dr. James B. Herrick. 8vo, 815 pages. Illustrated. W. B. Saunders & Co., Philadelphia and London.